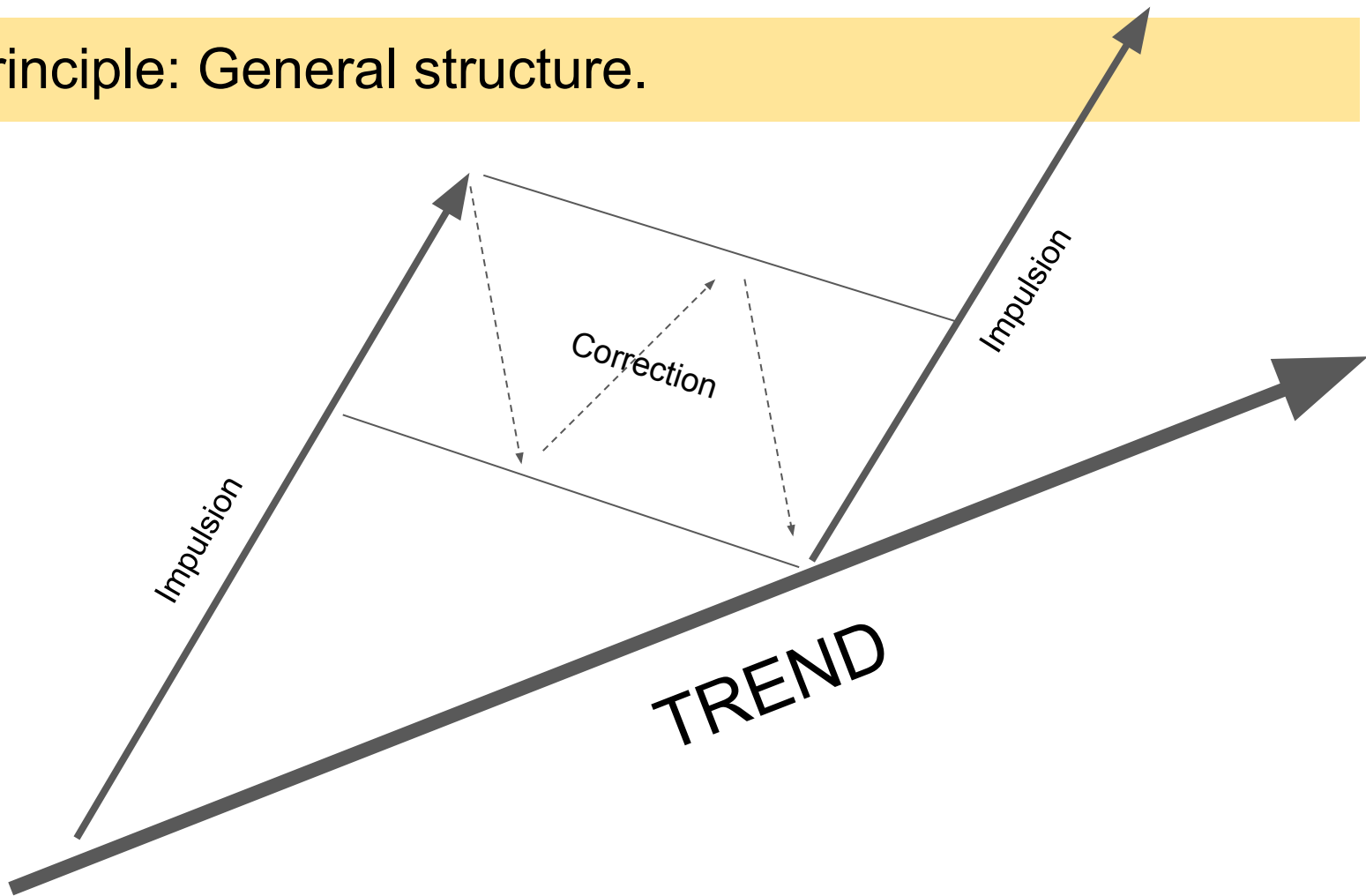


Chart analysis.

Introduction to wave analysis

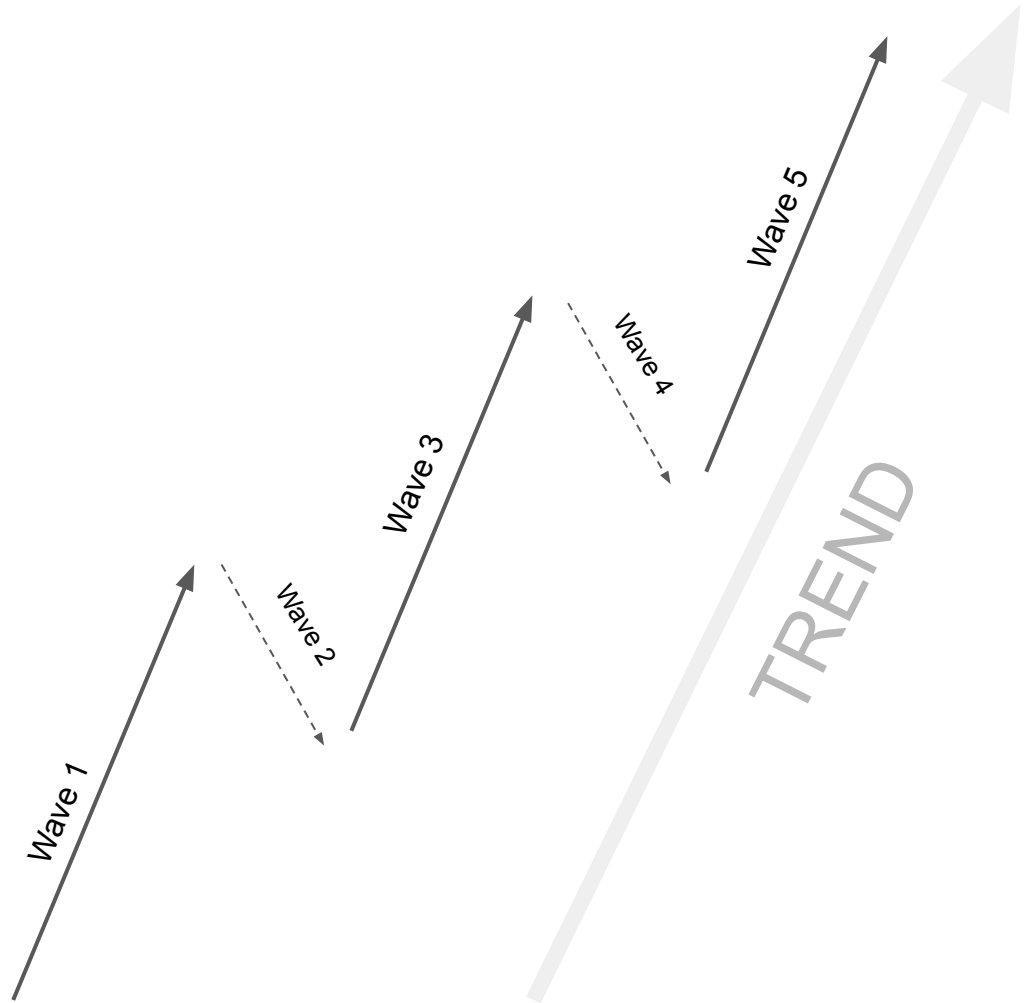
By Zendoo

Wave principle: General structure.



Impulsive waves.

One impulse can be described as a set of **5 sub waves** where waves 1,3 and 5 go in the direction of the trend.



Impulsive structure and complete cycle.

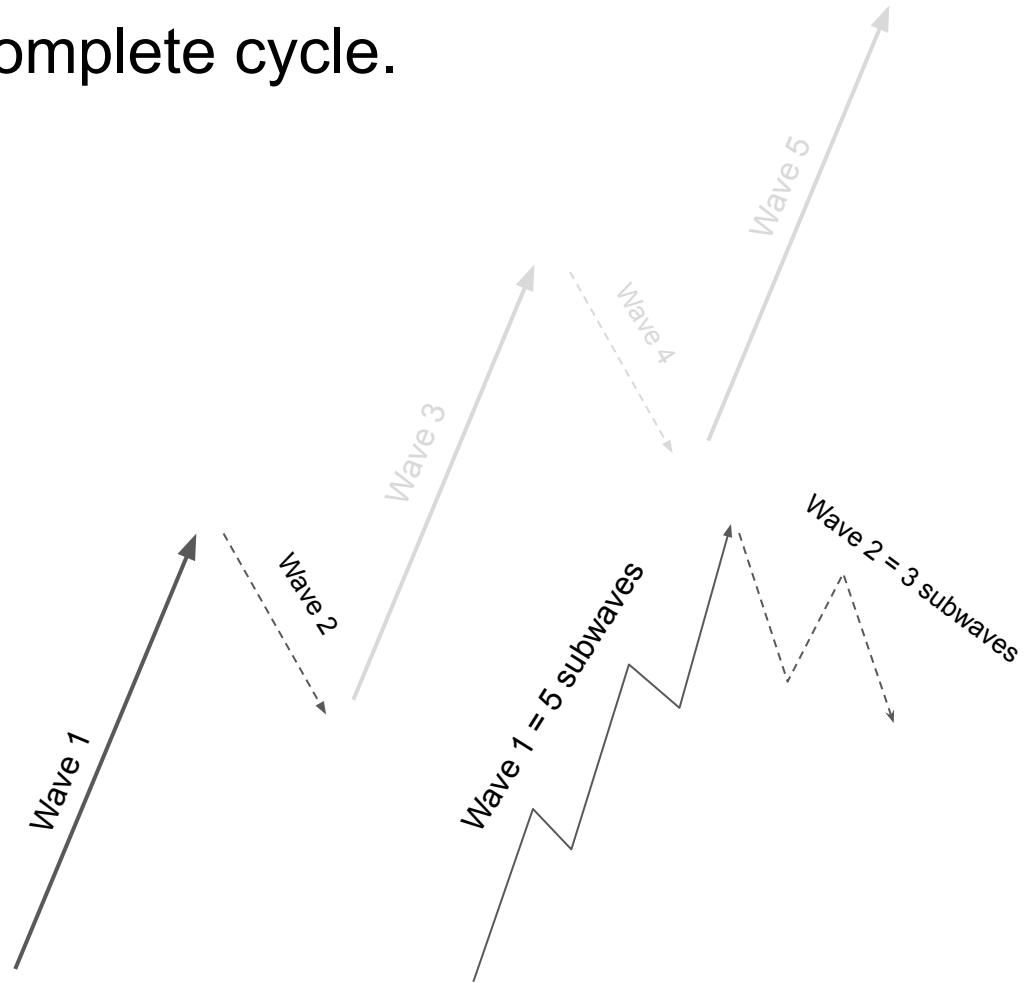
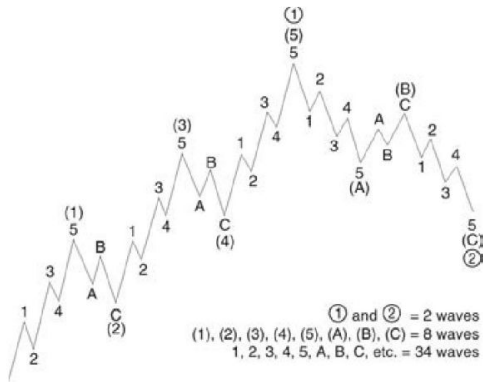
Due to the *fractal* nature of chart movements, each wave of an impulse can be subdivided into five subwaves.

The most common structures for a complete impulse cycle is an **8 waves structure**:

5 impulses + 3 corrections.

In Elliott wave theory, waves of a complete cycle are "labeled" as:

- 1-2-3-4-5 for the five waves of an impulse
- A-B-C for the three waves of a correction



Waves rules.

Wave 1 is the first building block of the ongoing impulse. It gives direction to the ongoing trend.

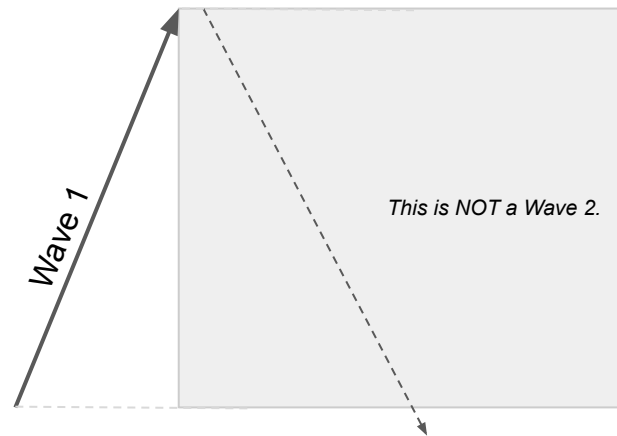
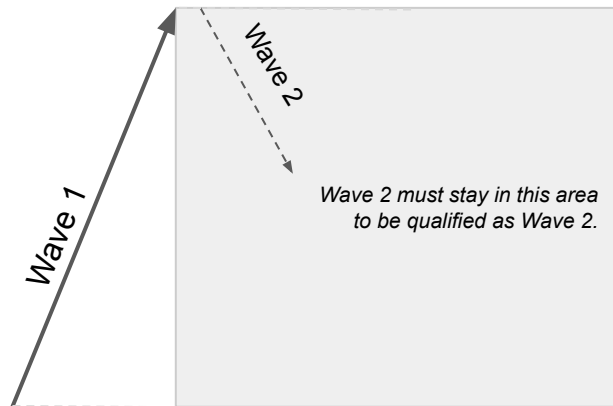
It usually subdivides into 5 subwaves.

Sometimes (rarely) takes the shape of a *diagonal*.

Wave 2 goes in the opposite direction of wave 1 and never retraces more than 100% of wave 1.

It usually subdivides into 3 subwaves (zigzag, flat or combination).

Is usually a zigzag or a zigzag combination



Waves rules.

Wave 3 must go beyond the end of wave 1.

It usually subdivides into 5 subwaves.

Is never the shortest wave compared to wave 1 and wave 5.

Wave 4 never retraces more than 100% of wave 3 and never enters the zone of wave 1*.

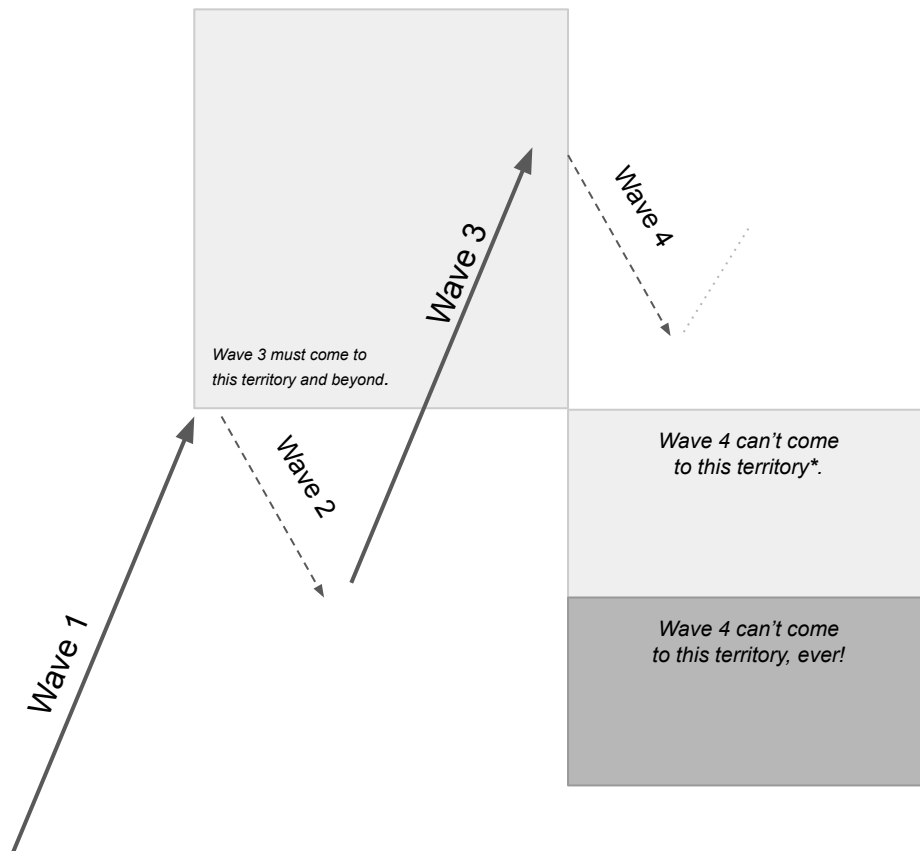
It usually subdivides into 3 subwaves (zigzag, flat, triangle or combination).

Is usually a flat, triangle or flat combination

* On specific occasion, wave 4 could cross Wave 1 's top line : see diagonale (wedge) guideline.

Wave 5 usually subdivides into 5 subwaves.

Sometimes takes the shape of a *diagonal*.

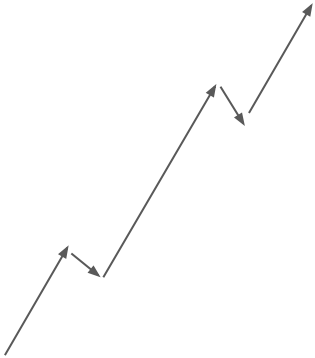


Waves rules.

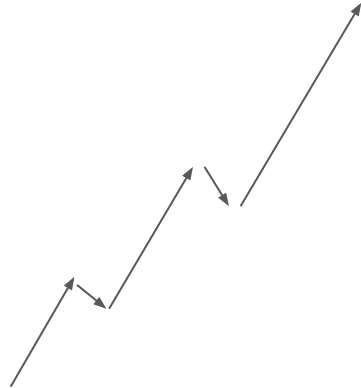
Wave 3 is never the shortest compared to wave 1 and 5.

Often wave 3 is the longest.

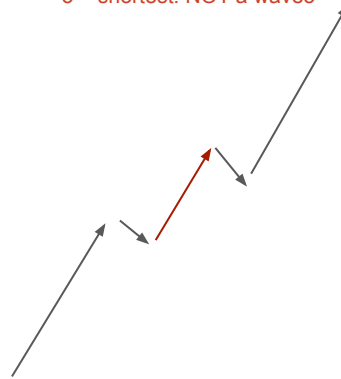
3 = longest : OK



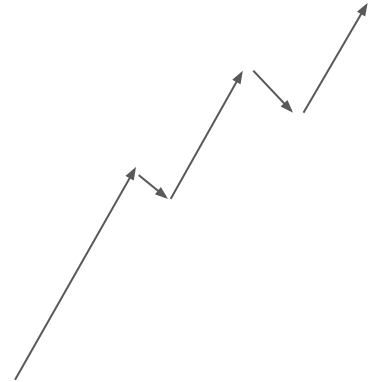
3 > 1 : OK



3 = shortest: NOT a wave3



3 > 5 : OK



Impulsive wave guidelines: Extension.

Often impulse's waves are more complex than the simple 5 waves structure as sub-level waves can become more visible.

Usually, only one wave gets the more complex sub structure, either wave 1, 3, or 5.
The extended wave is usually the longest.

- If wave 1 and 3 are about the same size, it's more likely that wave 5 will extend. When wave 5 is extended, it is often in fibonacci proportion to the net travel of wave 1 through 3.
- If wave 3 is extended, we can expect wave 5 to look like wave 1 (*length of wave 1 and 5 are equal or related by fibonacci ratio*).
- If wave 1 is extended (**very rare**), it's more likely that wave 3 and wave 5 will be similar. When wave 1 is extended, it is often in fibonacci proportion to the net travel of wave 3 through 5.
- The most commonly extended wave is wave 3

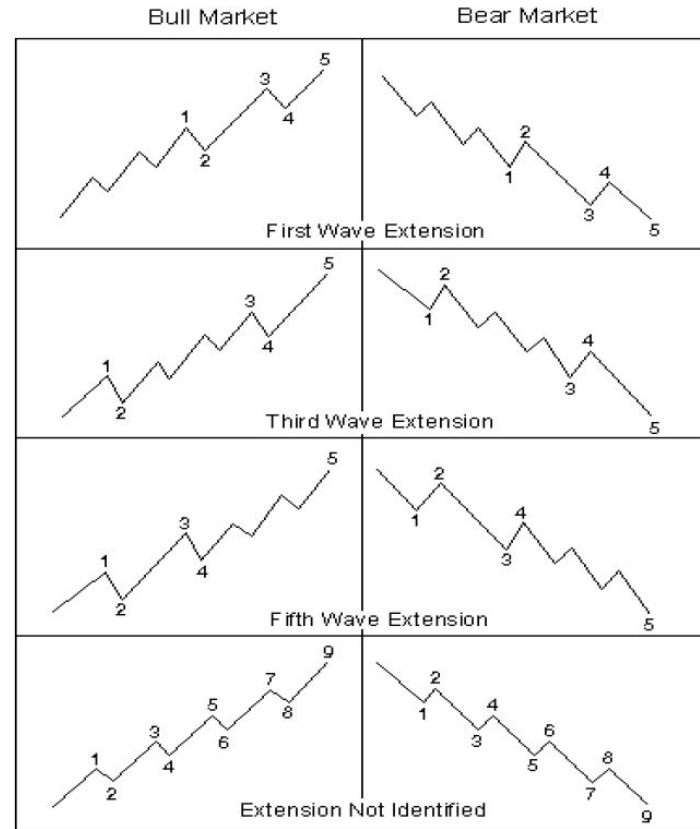
[Goto ratio analysis.](#)

This can make the counting of waves more difficult but keep in mind the basic rules:

Wave 4 doesn't retrace in the territory of wave 1 .

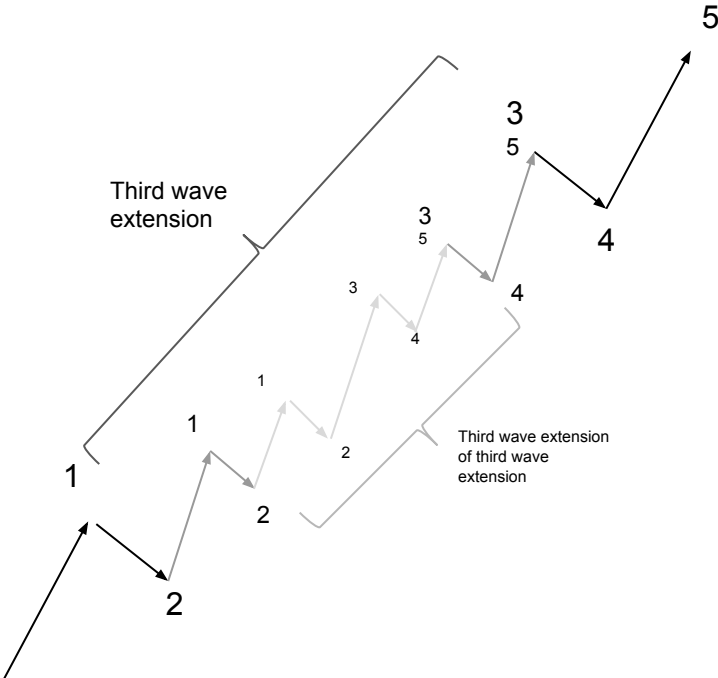
Wave 3 is never the shortest...

Wave 1, 3 and 5 are never all extended.



Impulsive wave guidelines: Extension.

An extension may occur within an extension:



Often (but not always) the extended subwave is the same number as the parent wave:

- 1st wave extension in wave 1
- 2nd wave extension in wave 2
- 3rd wave extension in wave 3

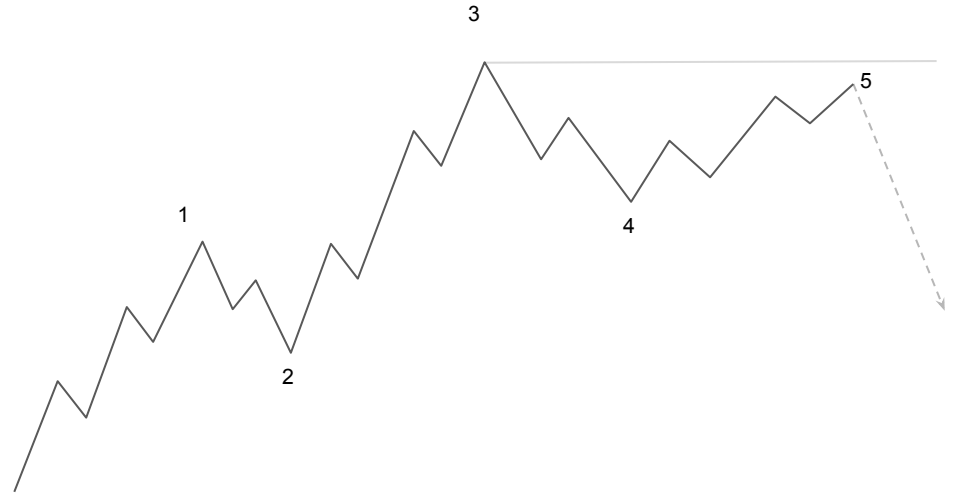
Impulsive wave guidelines: Truncation.

Sometimes wave 5 doesn't move beyond the end of wave 3.

This phenomenon often occurs after an extensively strong wave 3.

As this happens, we should be able to easily identify five sub waves components of wave 5.

We can expect a deeper correction after a truncation as it indicates a weakness in the current trend.



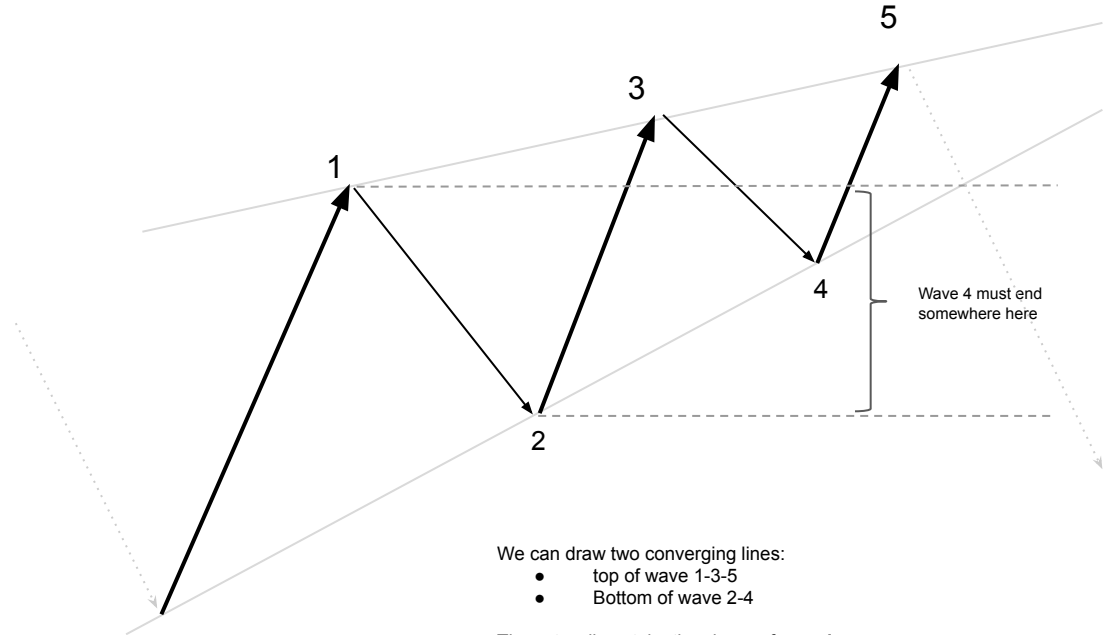
Impulsive wave guidelines: Diagonal.

Diagonal follows the same rules as impulse, but wave 4 retraces almost always in the territory of wave 1 but never beyond the end of wave 2.

This pattern takes place either at first wave (leading diagonal) or last wave (ending diagonal) of ongoing higher degree wave structure.

Wave 2 and 4 usually retrace .66 to .81 of preceding wave.

Wave 5 can be truncated (throw-under) but can also end beyond converging line (throw-over).

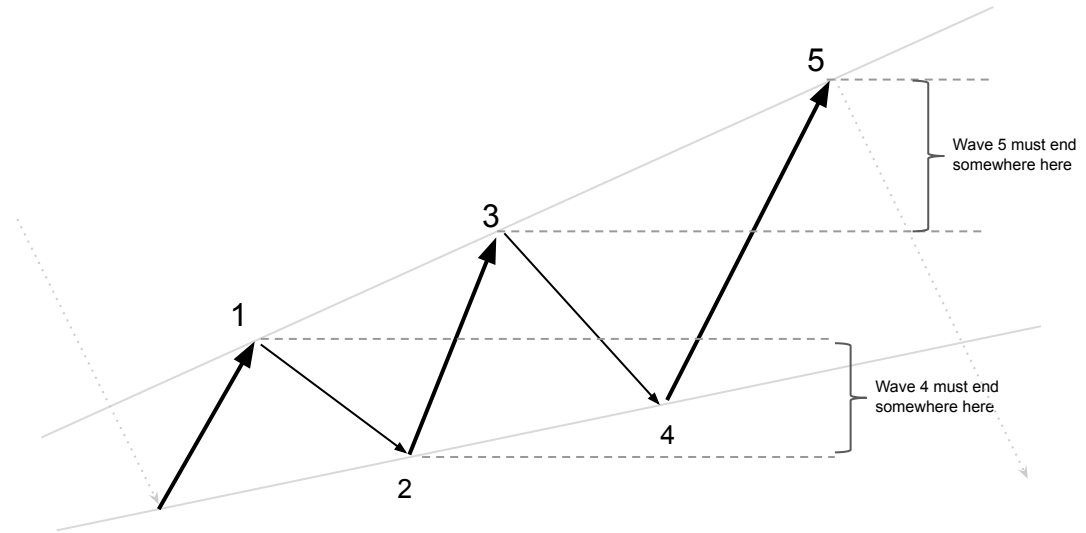


Impulsive wave guidelines: Expanding diagonal.

Diagonal follows the same rules as impulse, but wave 4 retraces almost always in the territory of wave 1 but never beyond the end of wave 2.

Wave 5 of an expanding diagonal must end beyond the end of wave 3 and may not reach diverging lines

This pattern takes place either at first wave (leading diagonal) or last wave (ending diagonal) of ongoing higher degree wave structure.



- We can draw two diverging lines:
- top of wave 1-3-5
 - Bottom of wave 1-3-5

Impulsive wave guidelines: Ending diagonal.

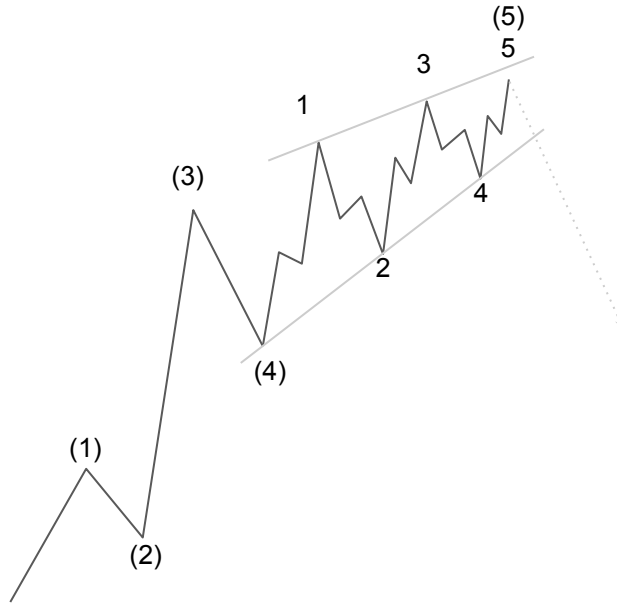
Diagonal that occurs in wave 5 of an impulse is called Ending Diagonal.

It often occurs when wave 3 is very strong and/or extended (*if wave 3 isn't extended it's unlikely that wave 5 will be an ending diagonal*).

Ending Diagonal can appear at the C wave of an ABC correction (flat or zigzag) or as the final C wave of a more complex combination correction.

Instead of being built on the traditional 5-3-5-3-5 structure of an impulse, leading diagonals are built on a 3-3-3-3-3 structure.

Ending Diagonal indicates an exhaustion of current largest structure.



It is expected that position (5) of the last point of the ending diagonal may vary and not be aligned with 1 and 3.

Each subwave of an ending diagonal is a zigzag.

At the end of an ending diagonal, we can expect a retracement, at least back to the starting point of the wedge, if not more.

Wave 5 extension, truncated wave 5 and ending diagonal all imply significant reversal to come. If two of those patterns occur together they will amplify the reversal of current trend.

Impulsive wave guidelines: Leading diagonal.

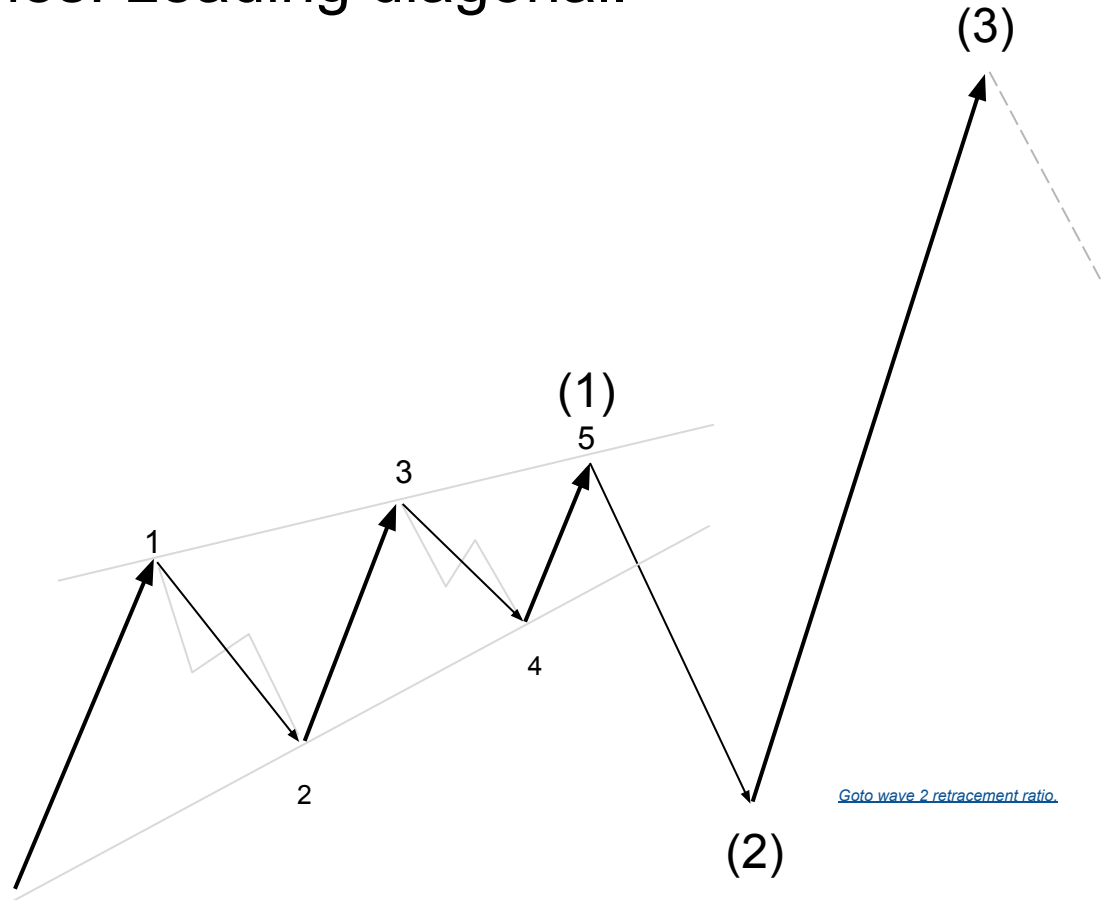
Diagonal that occurs in wave 1 of an impulse or in wave A of an ABC correction (zigzag) is a leading diagonal.

Subwave construction of a leading diagonal can be either 3-3-3-3-3 (usually) or 5-3-5-3-5 (sometimes) structure. (wave 2 and 4 are always zigzags, wave 1, 3 and 5 can be impulses or zigzags).

Wave 5 of a leading diagonal must end beyond the end of wave 3.

The wave following a leading diagonal will often retrace deeply, (can come close to the starting point of leading diagonal).

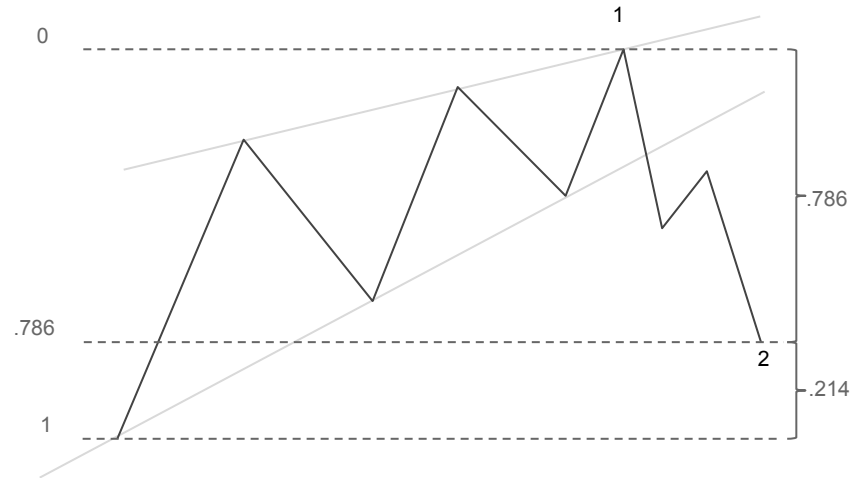
After a leading diagonal, wave 3 is likely to be extended.



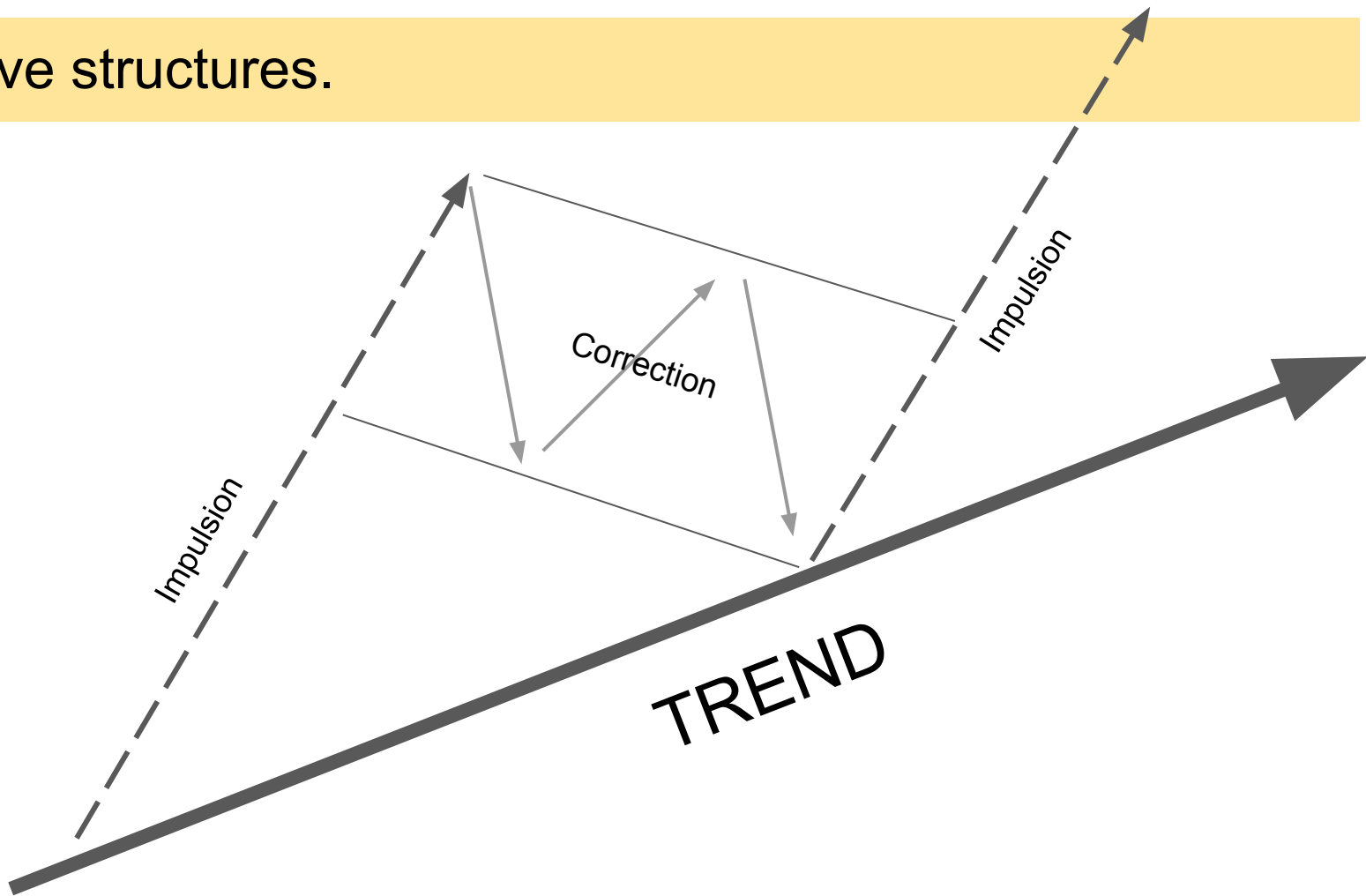
Impulsive wave guidelines: Leading diagonal.

Retracements ratio tendency.

After a leading diagonal, sharp corrections tend to retrace to .786 level.



Corrective structures.



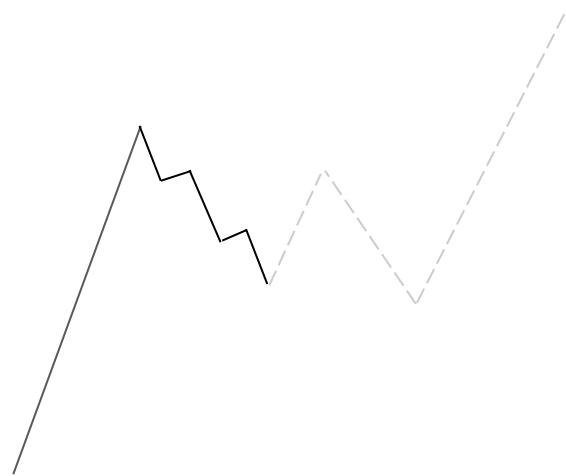
Corrective structures.

Understanding and identifying corrective structure is probably the most important (and complicated) thing to do as the market spends most of the time in a corrective structure.

Also identifying correctly corrective structures gives the opportunity to fully benefit from incoming/ongoing impulse waves.

The basic pattern of a corrective waves is NEVER a five wave structure.

→ *Consequently if an initial five waves movement against the ongoing trend is identified, it must be interpreted as the first component of the current correction and not the end of it.*



Corrective structures.

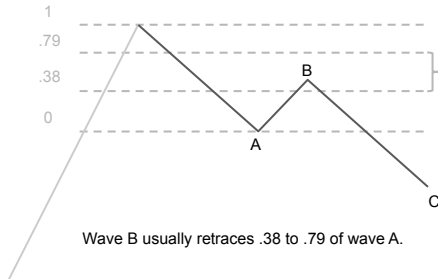
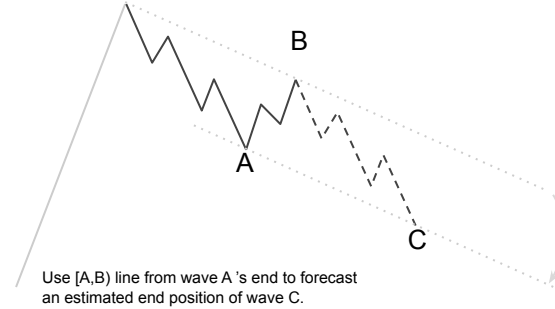
Zigzags (5-3-5)

- **Simple Zigzag**
3 waves ABC pattern where wave C almost always ends beyond the end of wave A.

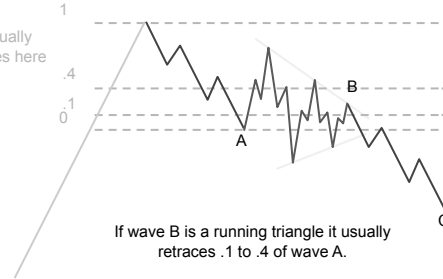
Rules :

A = impulse (mostly) or leading diagonal (sometimes).
 B = zigzag, flat, triangle or any combination.
 C = impulse (mostly) or diagonal (sometimes).
 B can't move beyond the start of A.

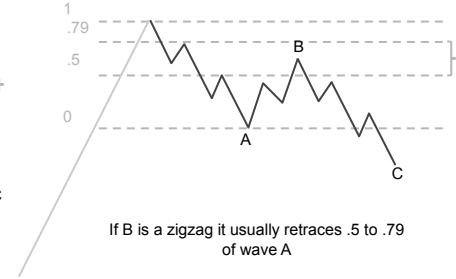
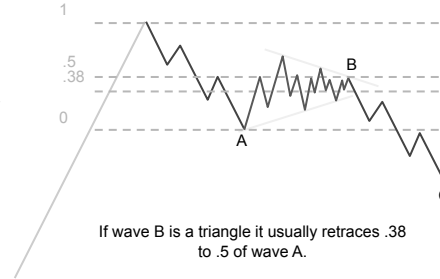
Often but not always, a symmetry A=C exists.



[Goto wave B retracement ratio when zigzag is wave B of a large zigzag.](#)



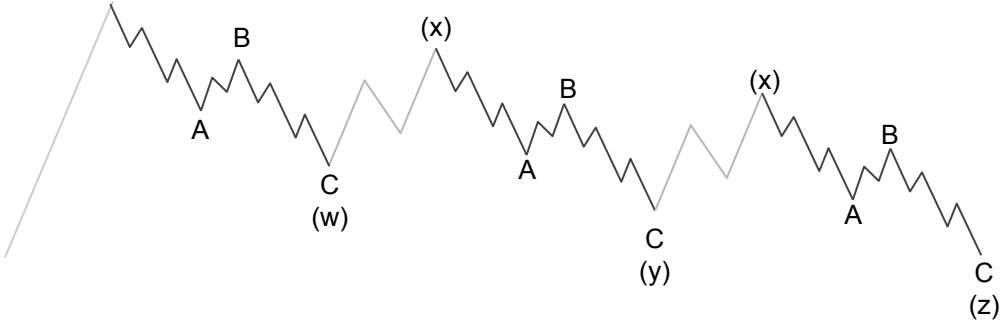
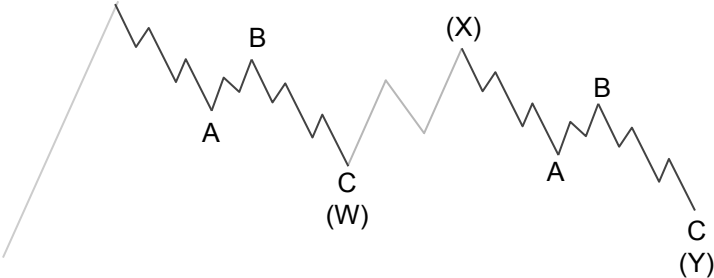
[Goto wave C ratio](#)



Corrective structures.

Zigzags (5-3-5)

- **Double or triple Zigzag**
Where each Zigzag is separated by an intervening "three".



Corrective structures.

Flat (3-3-5)

3 waves ABC pattern.

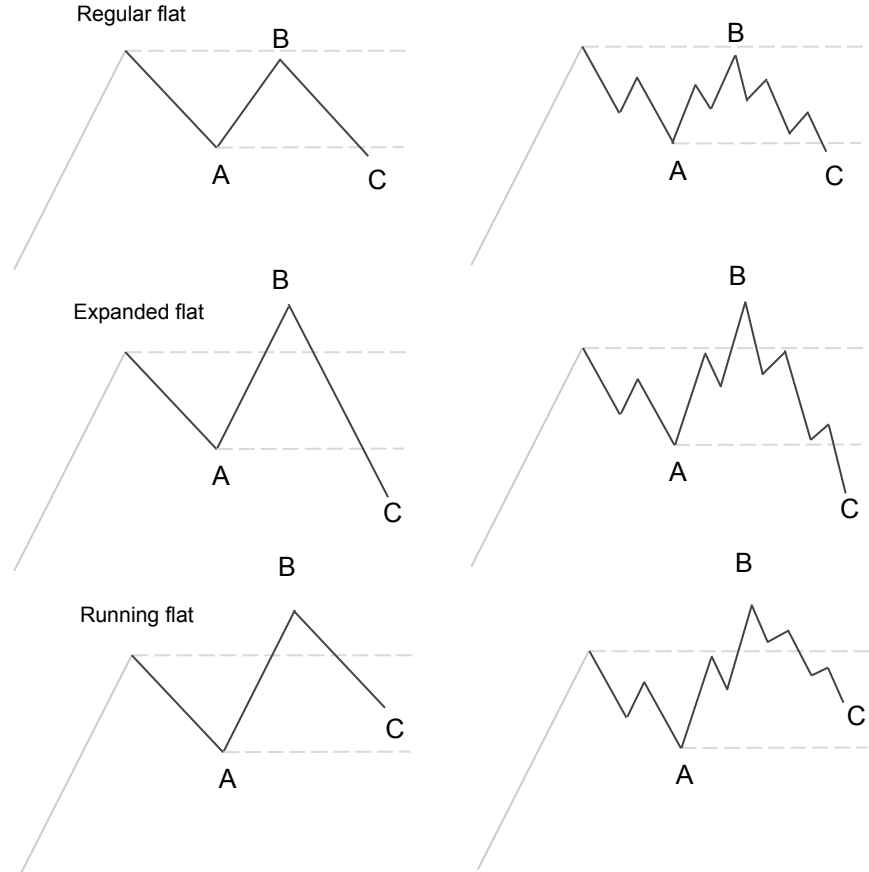
Rules :

- A = never a triangle.
- B = always retraces a least .9 of A
- C = impulse or diagonal.

Flats always precede or follow an extension.

The more powerful the underlying trend , the briefer the flat tend to be.

Flats occur more often in wave 4 than in wave 2.



Corrective structures.

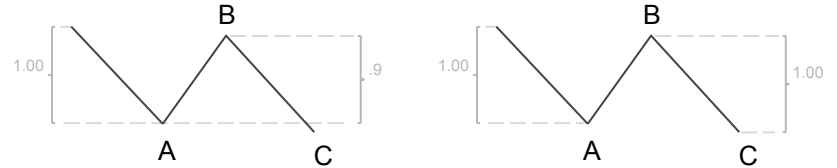
Flat (3-3-5) - waves ratio.

Wave B retrace between .9 and 1.382 of wave A.
Length of wave B is between 1 and 1.65 of wave A.

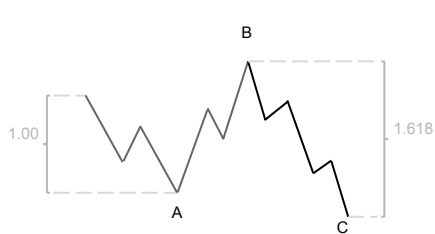
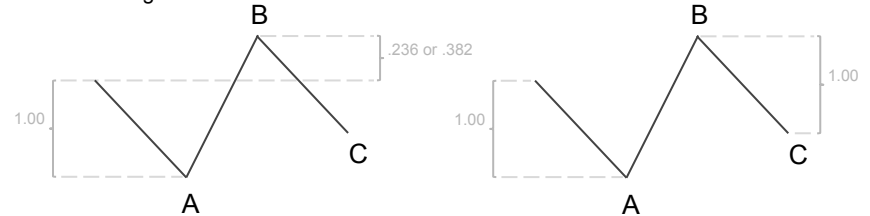
In expanded flats:

- Wave B ends either .236 or .382 beyond the start of wave A.
- Wave C is often 1.618 times the height of wave A, or sometimes wave C ends .618 times the height of A beyond the end of wave A

Regular flat

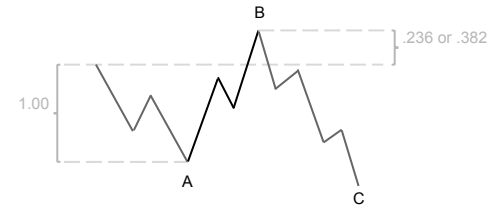
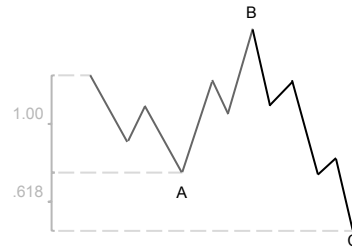


Running flat



In rare cases wave C is 2.618 x wave A

or



Corrective structures.

Triangle (3-3-3-3-3)

5 overlapping waves ABCDE pattern.

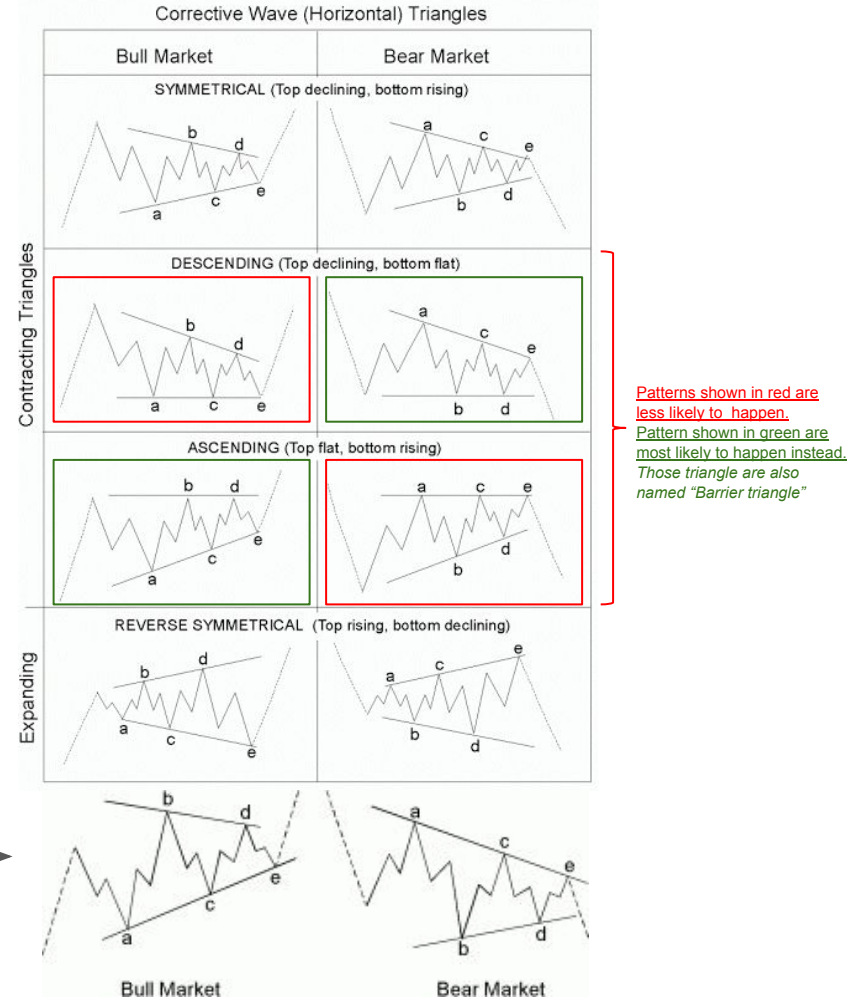
Usually associated with decreasing volume and volatility.

Delimitation of triangle must be drawn using [AC] and [BD] only, as wave E often undershoot or overshoot the [AC] line

Can be either :

- Contracting triangle
 - Symmetrical triangle
 - Descending triangle
 - Ascending triangle
- Expanding triangle

Also 40% of triangle can be “running” (where end of wave B goes beyond starting of wave A).
 Even in those case, end of wave E can't reside beyond start of wave A.



Corrective structures.

Contracting triangle (3-3-3-3-3)

Rules :

At least 4 waves subdivide into zigzag or zigzag combination.

Can only have one complex subwave, either a zigzag combination or a triangle

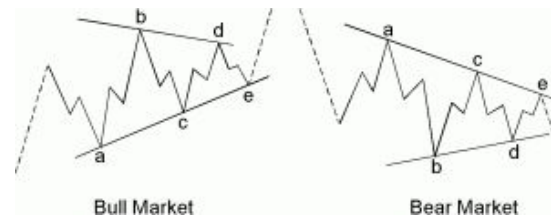
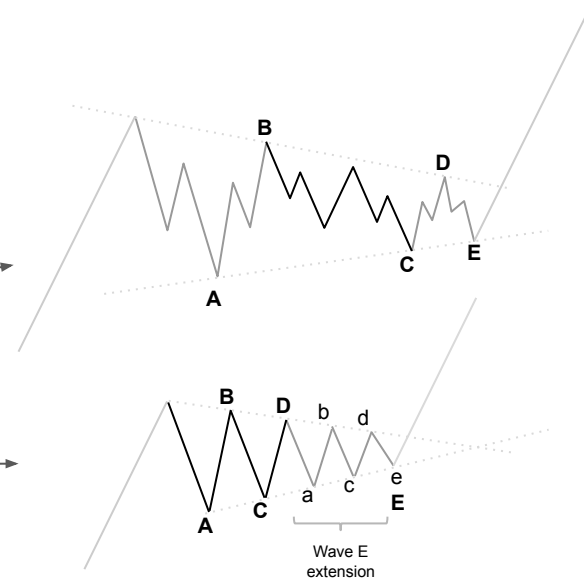
Usually wave C (but sometimes wave D) is a zigzag combination that is longer lasting than the other subwaves.

In rare cases one of the subwaves (usually wave E but sometimes wave C or D) is itself a barrier or symmetrical triangle, making the whole pattern a 9 waves *ABCDabcde* correction.

This particular cases can be labeled as a triangle extension.

Also +/- 40% of contracting triangles can be "running" (where end of wave B goes beyond starting of wave A).

Even in those case, end of wave E can't reside beyond start of wave A.



Corrective structures.

Contracting barrier triangle (3-3-3-3-3)

Rules (same as contracting triangles):

At least 4 waves subdivide into zigzag or zigzag combination.

Can only have one complex subwave, either a zigzag combination or a triangle

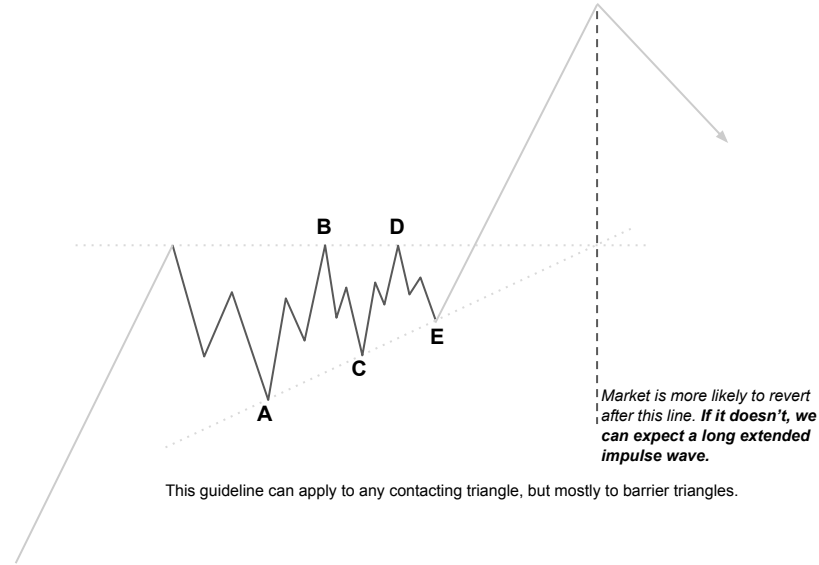
Also labeled as Descending and Ascending triangle.

Same guidelines of contracting symmetrical triangles apply to contraction barrier triangles.

Usually never extend to a 9 waves structure.

When barrier triangle appears in wave 4 of an impulse, wave 5 will travel +/- the same distance of the widest part of the triangle and could take the shape of an ending diagonal. (We can use the crossing point of (AC) and (BD) lines as a reference where the market could revert.)

If it doesn't revert after crossing point, we can expect a long extended 5th wave (that may be the longest wave in the sequence).



Corrective structures.

More about contracting triangles

When a triangle appears at the beginning of Wave2, it signals that Wave2 is not complete and will be more complex.

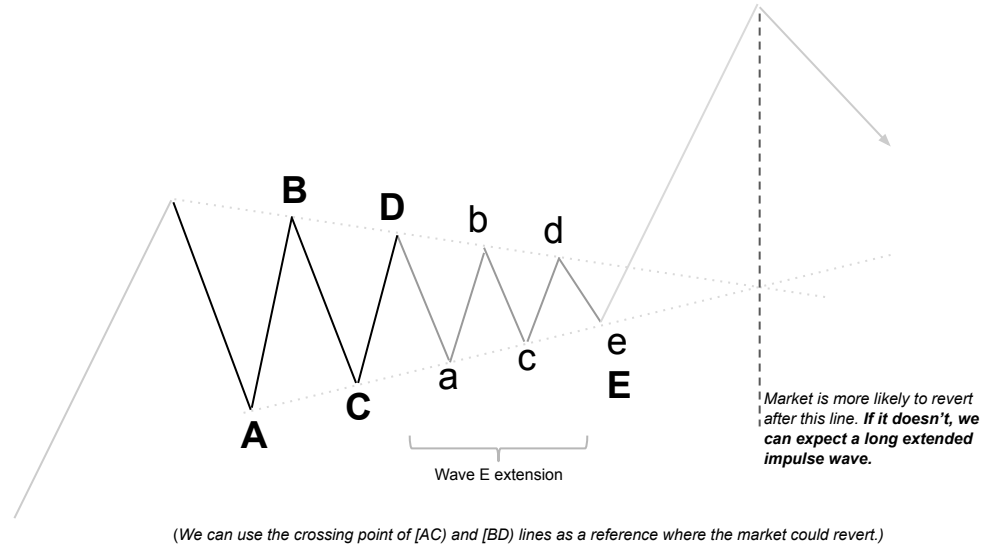
When (barrier) triangle appears in wave 4 of an impulse: Wave 5 will travel +/- the same distance of the widest part of the triangle and could take the shape of an ending diagonal. (We can use the crossing point of [AC] and [BD] lines as a reference where the market could revert.)

If it doesn't revert there, we can expect a long extended 5th wave (that may be the longest wave in the sequence).

We can expect triangles to be positioned just before the final wave of ongoing higher degree pattern:

- As wave 4 of an impulse
- As wave B of ABC correction
- As wave X of double and triple zigzag

Triangle may also occur at the end of a *corrective combination* (even then it usually precedes the final wave of a higher degree correction).



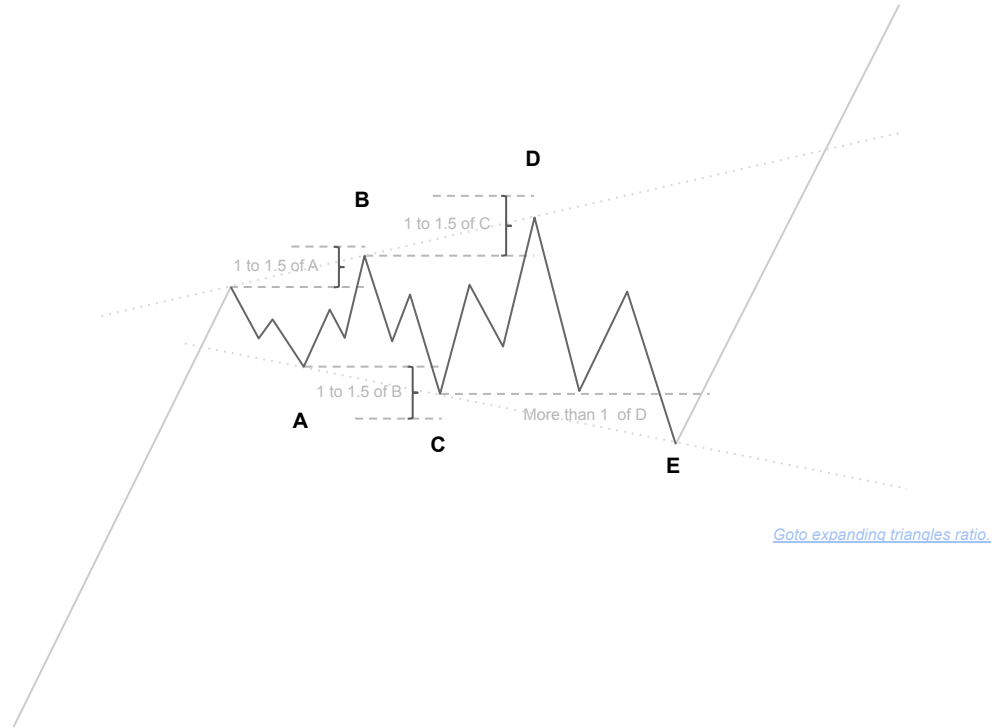
Corrective structures.

Expanding triangle (3-3-3-3-3)

Rules (same as contracting triangles):
Waves B, C and D retrace between 1 and 1.5 of their preceding subwaves

Usually waves B, C and D retrace between 1.05 and 1.25 of their preceding subwaves.

No subwave subdivide into a triangle.



Corrective structures.

Combinations (Double and Triple “three”)

Any combination of 2 or 3 corrective pattern is called respectively double three and triple three.

Each component of combination is labeled accordingly using “abc-WXYZ” format, where X is a reactionary wave (usually a zigzag but can be any “three”) that “glues” the combination together.

Rules :

2 or 3 corrective patterns separated by 1 (or 2) corrective pattern in the opposite direction.

A “double three” flat combination is either:

- A zigzag and a flat
- A flat and a zigzag
- A flat and a flat
- A zigzag and a triangle
- A flat and a triangle

The word “three” is used even if a triangle (5 wave corrective structure) is part of the combination.

A “triple three” combination is mostly:

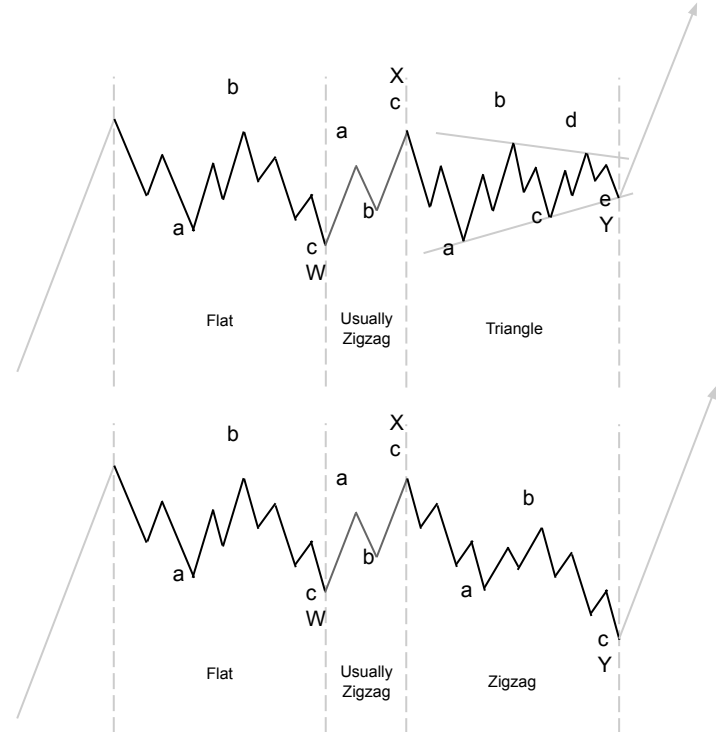
- Zigzag - Flat - Flat
- Zigzag - Flat - Triangle
- Flat - Flat - Flat
- Flat - Flat - Triangle

Expanding triangles have never been observed as component of a combination

Usually:

- There is never more than one zigzag in a combination.
- There is never more than one triangle and triangle appears only at the end of any combination.

When a correction appears to be too small compared to the preceding impulse, a combination is more likely.



Corrective structures.

More on combinations

In a combination:

Zigzags can be replaced by double and triple zigzags.

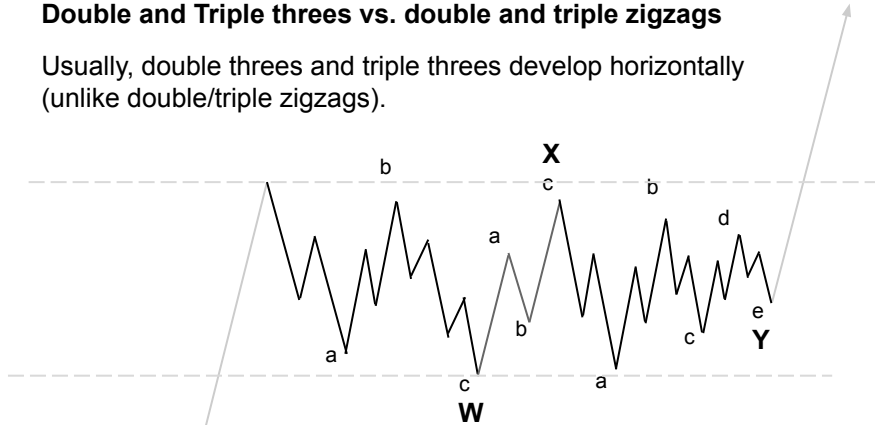
Flats and triangles can be replaced by double and triple threes.

Double and triple zigzags take the place of zigzags.

Double and triple threes take the place of flats and triangles.

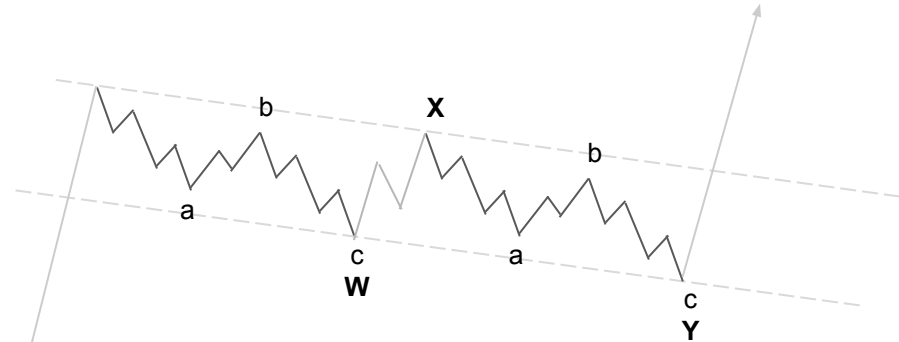
Double and Triple threes vs. double and triple zigzags

Usually, double threes and triple threes develop horizontally (unlike double/triple zigzags).



The first simple pattern (W) often constitutes an adequate price correction. The second and third three appear to occur mainly to extend the duration of the corrective process.

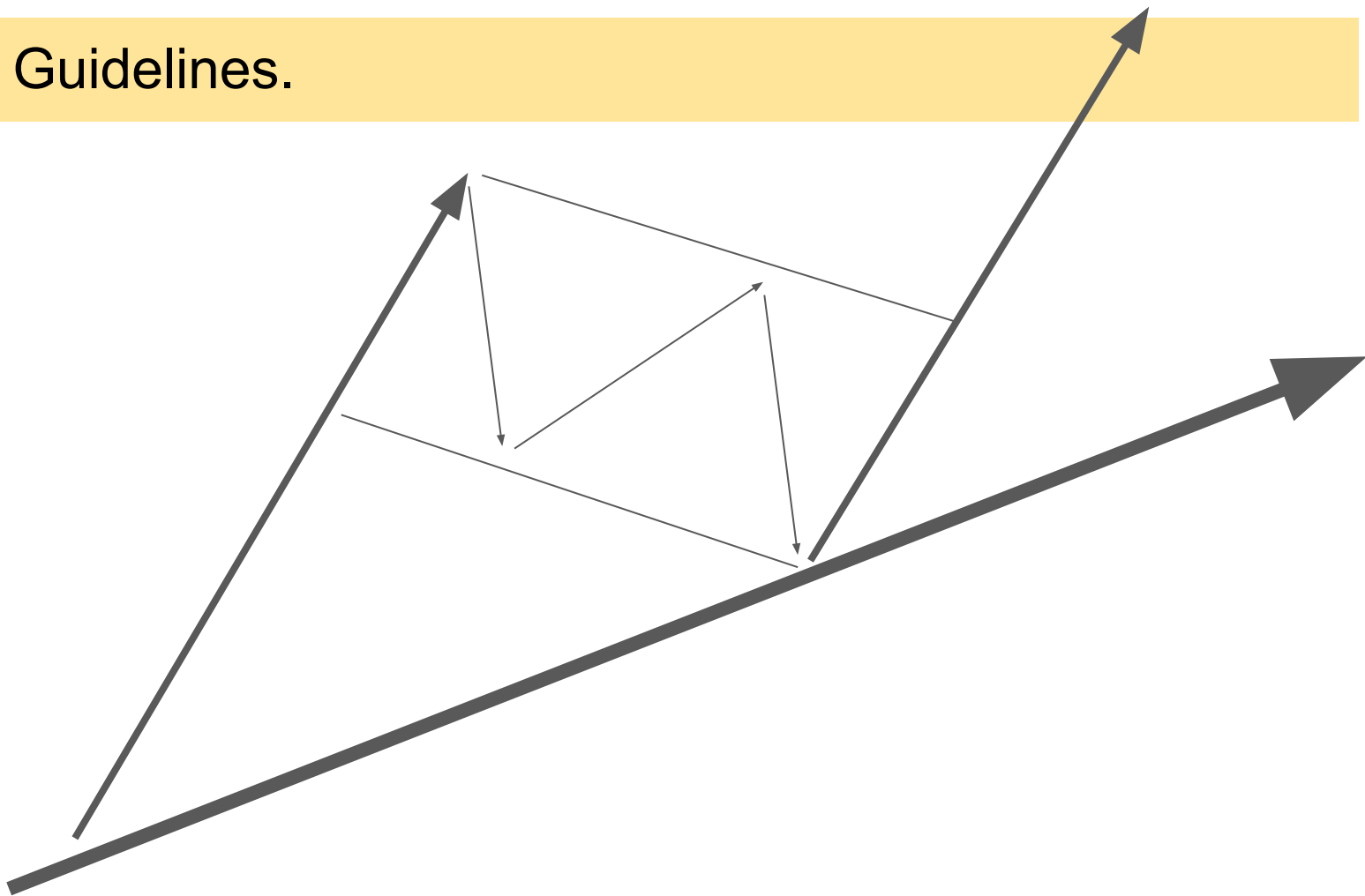
Correction needs more time.



When pullback of wave W is not deep enough, the correction needs a second (Y) or a third (Z) zigzag to achieve complete retracement.

Correction needs more depth.

General Guidelines.



General guidelines.

Counting waves

	Impulsion	Correction
Minimum	1	1
Standard	5	3
Extended 1x	9	-
Extended 2x (3x)	13 (17)	-
Double combination	-	7
Triple combination	-	11

It's occasionally difficult to determine if a wave is a correction or an impulsion, sometimes just by counting, the number of subwaves can give an accurate indication.

We should be careful to identify triangle accurately and count them as 3 waves element to avoid misleading errors.

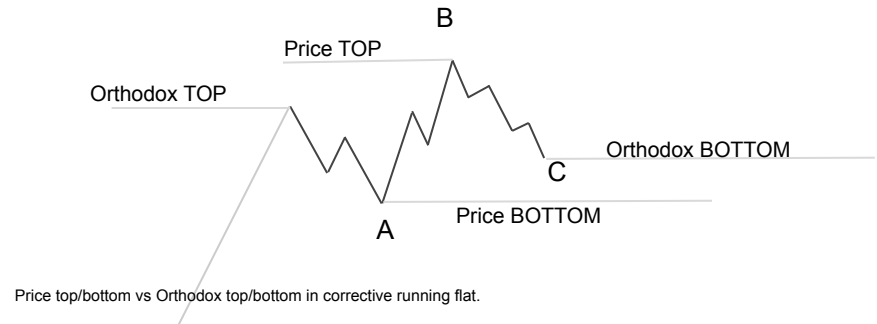
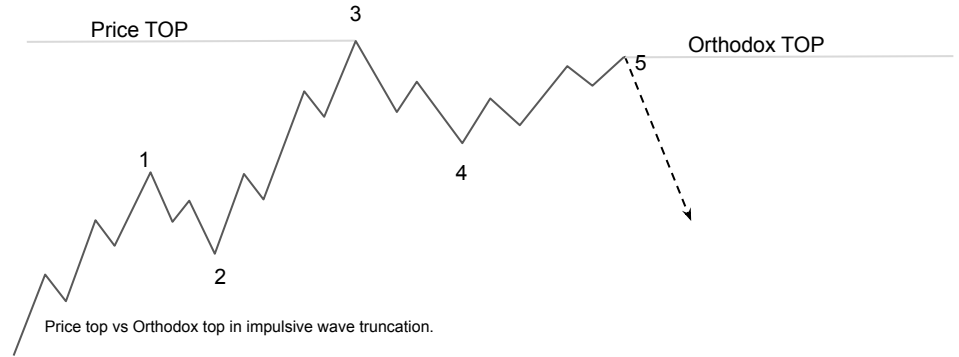
A count of 9, 13 or 17 with few overlaps, for instance, is likely motive, while a count of 7, 11 or 15 with numerous overlaps is likely corrective. (The main exceptions are diagonal triangles of both types, which are hybrids of motive and corrective forces.)

General guidelines.

Orthodox Tops and Bottoms.

Orthodox top and bottom indicate start and end of current pattern and can differ from price High and price low of the structure.

When counting waves ALWAYS use orthodox tops/bottoms.



General guidelines.

Alternation within impulse.

Wave 2 and wave 4 will almost always have different corrective pattern:

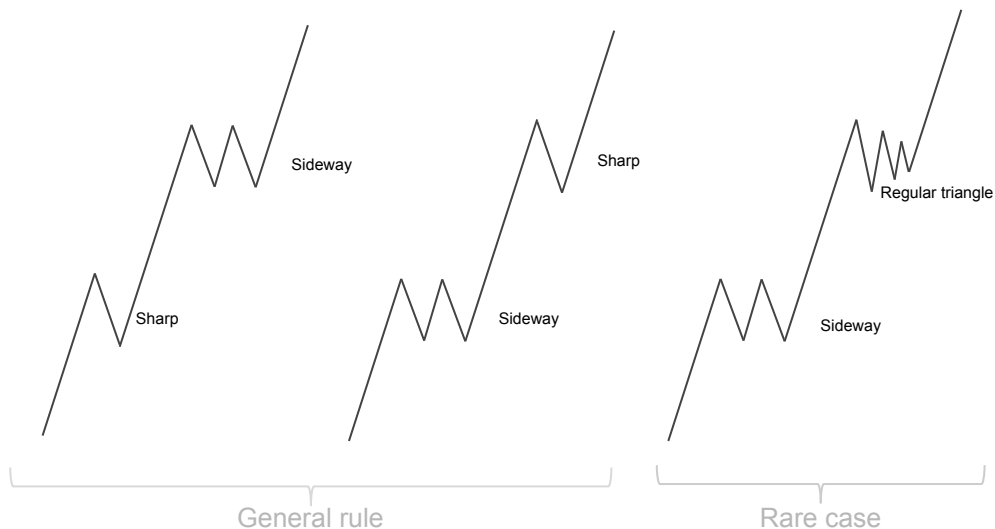
If a wave 2 of an impulse is a sharp correction, it's more likely that wave 4 will be a sideways correction (and vice versa).

Sharp correction :

- Never includes new price extreme
- Almost always zigzags (single, double or triple)
- sometimes double three that begins with a zigzag.

Sideway correction:

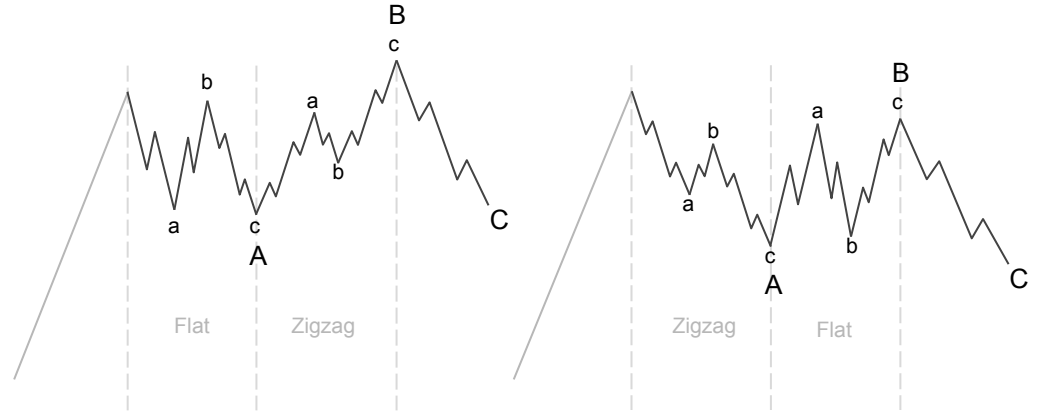
- Usually includes a new price extreme
- Flats, triangles, double and triple corrections



General guidelines.

Alternation within a corrective wave.

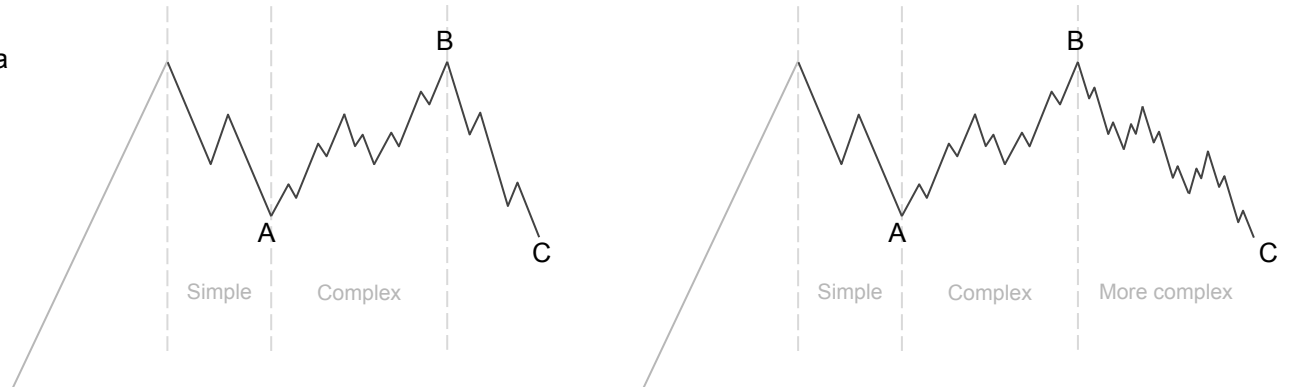
If a correction begins with a flat “abc” for wave A, expect a zigzag for wave B and vice versa.



Often If a large correction begins with a simple “abc” zigzag for wave A, expect wave B to be a complex Zigzag (more subdivisions).

sometimes wave C will be even more complex.

Reverse order of complexity is somewhat less common.



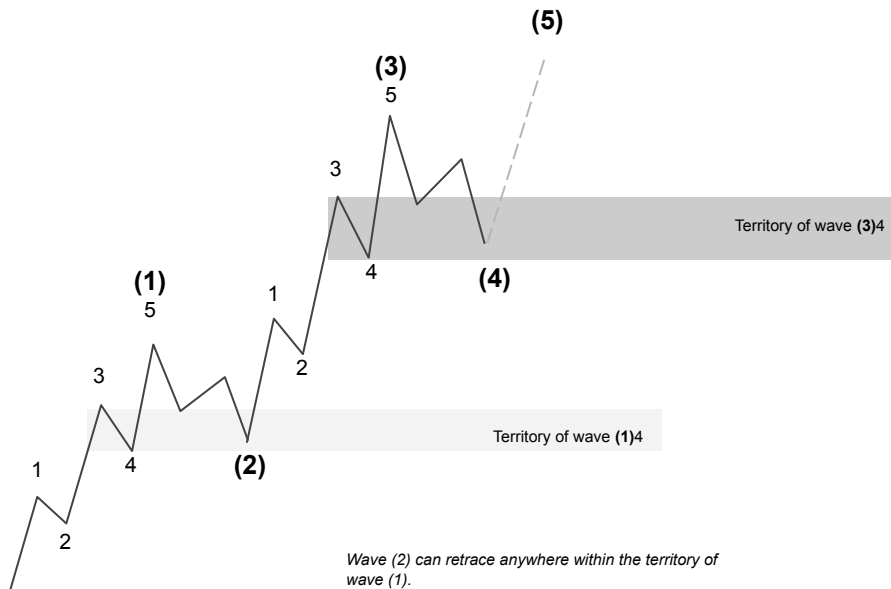
General guidelines.

Depth of a corrective wave.

Usually, corrections tend to retrace within the territory of wave 4 of previous lesser degree impulsion (often correction comes close to the end of wave 4).

This is especially true for wave 4 correction.

As guidelines are not rules, sometimes flat or triangle corrections that follow an extension will just come close to the start of wave 4 without going into its territory.



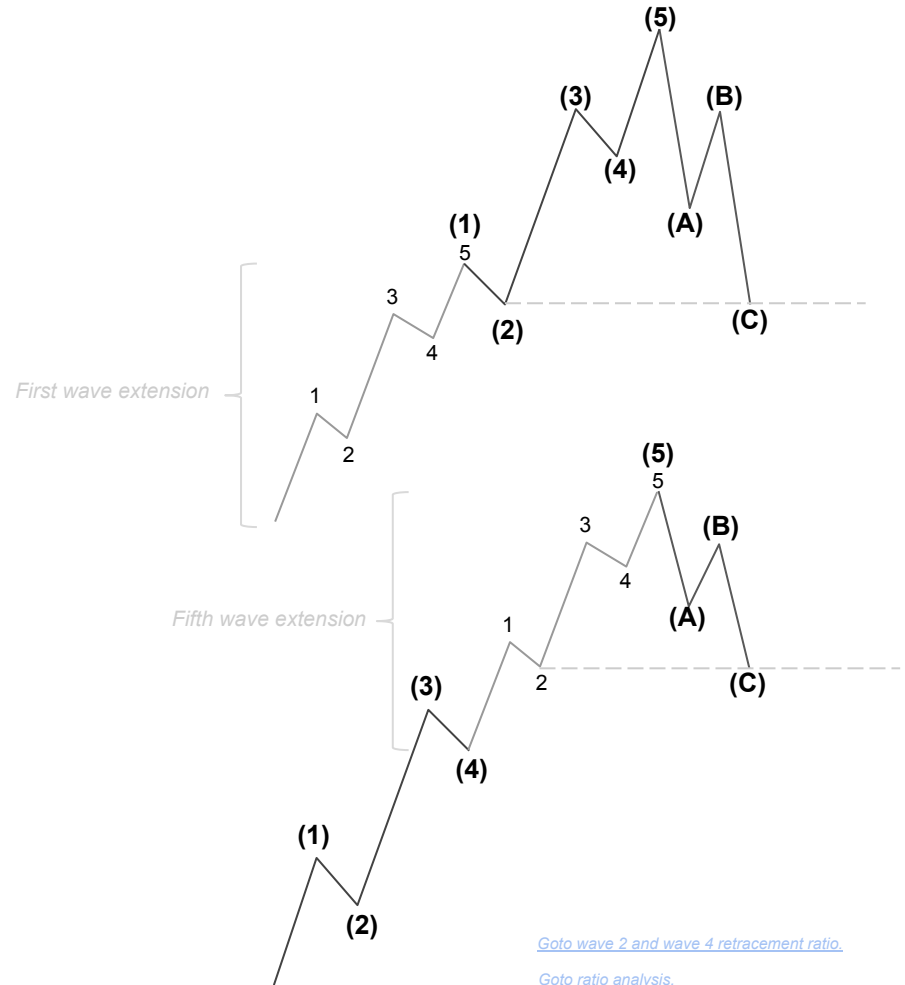
[Goto wave 2 and wave 4 retracement ratio.](#)

General guidelines.

Depth of a corrective wave and wave extensions.

If the wave(1) of an impulse is extended, the correction following wave(5) will retrace to the end of wave(2).

If the wave(5) of an impulse is extended, the correction following wave(5) will retrace to the end of wave2 of lesser degree.

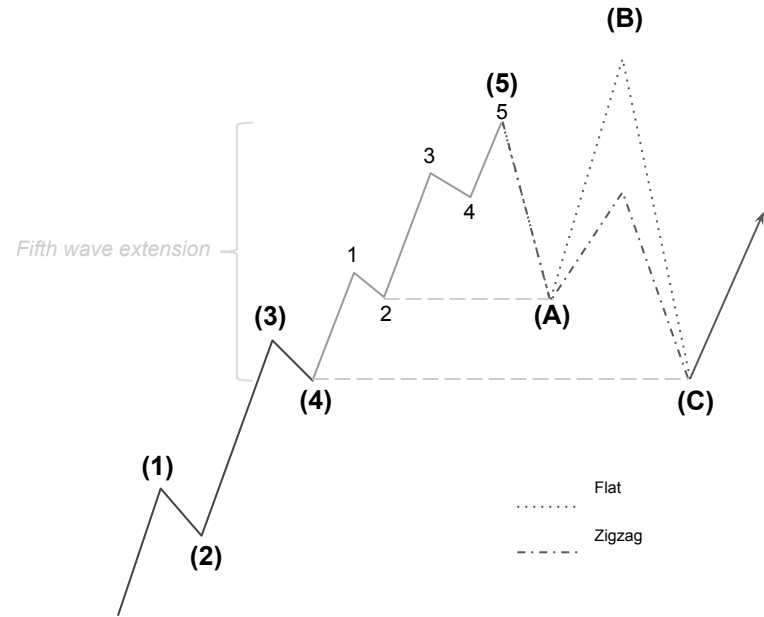


General guidelines.

Depth of a corrective wave and Fifth wave extension.

Fifth wave extension is typically followed by a strong retracement (that stops at the end of wave2 of extension).

...sometimes the correction will end there but It is highly possible that this retracement is the wave A of a deeper correction (flat or zigzag). We can expect this deeper correction to tag the end of wave(4)

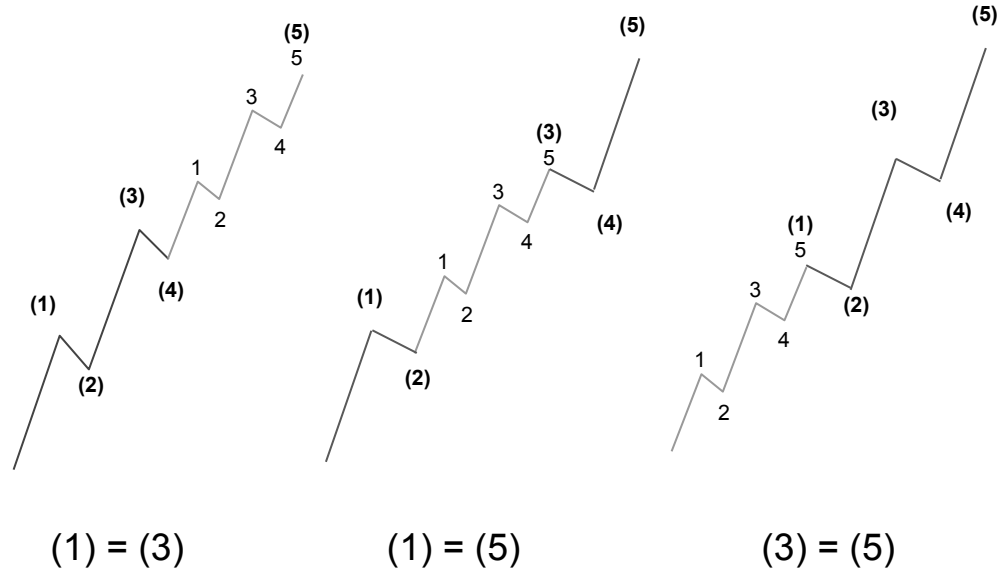


General guidelines.

Wave equality.

In an impulse, two of the three impulsive subwave will tend to equality in price and time.
This equality generally happens when one subwave is an extension.

If perfect equality is lacking, a .618 multiple is the next likely relationship.



Don't forget that wave 3 is NEVER the shortest !

General guidelines.

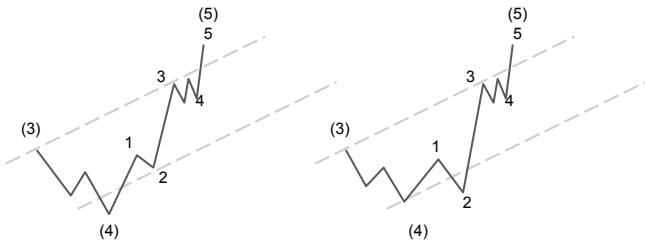
Channeling (forecasting wave developpement)

Usually impulsive waves fluctuate between two parallel trend lines.

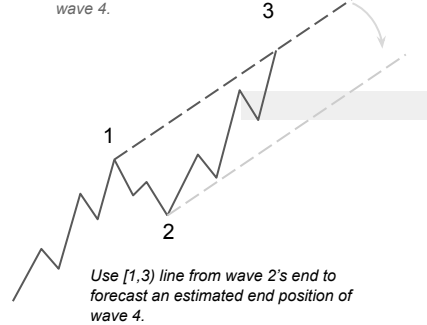
Keep in mind that 1,3 and 5 will not always be aligned:

- Wave 3 is abnormally strong.
- Declining volume at the end of wave 5: will not reach trendline (Throw-under).
- Increasing volume at the end of wave 5: will end beyond trendline (Throw-over).

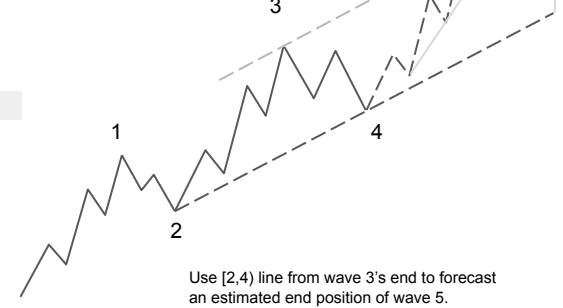
*In the case of Throw-over, we can expect sub wave 4 of lower degree to stick below the trendline.
Throw-over on wave 5 may be preceded by a throw-under on wave 4 (or on wave 2 of 5):*



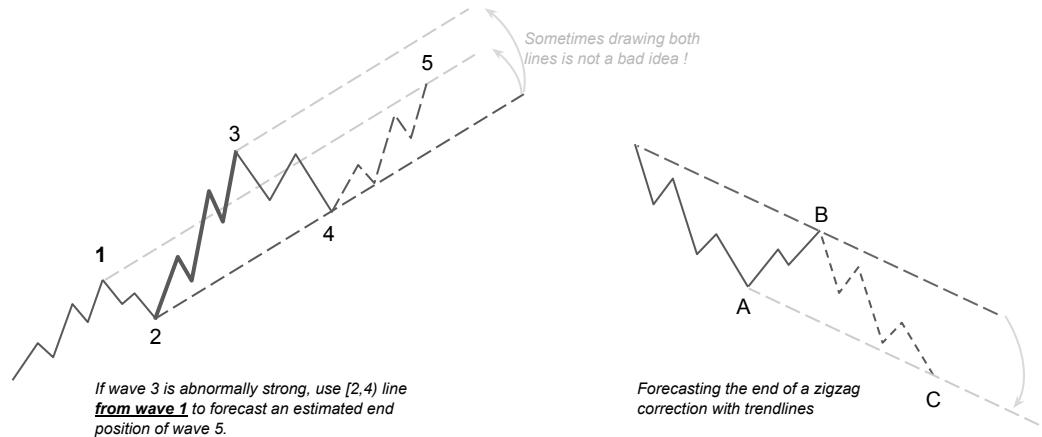
As corrective waves tend to come to the 4th territory (of a lower degree), the conjunction of those two guideline is a good tool for forecasting position of wave 4.



As wave 5 grows, we can draw channeling trend lines on lower degree structure to forecast ending position of wave 5.



Sometimes drawing both lines is not a bad idea!



General guidelines.

Wave counting

Follow the rules and use the guidelines

To forecast accurately, It is important to count waves correctly.

To avoid mistakes (identifying a 5 waves impulse as a 3 wave correction), we need to precisely follow the rules, and use guidelines as much as possible.

Rule out

When wave structure is confusing, instead of trying to identify what is current wave, it is a good practice to first rule out what it isn't. Sometimes using a process of elimination allows more clarity in the reading of charts.

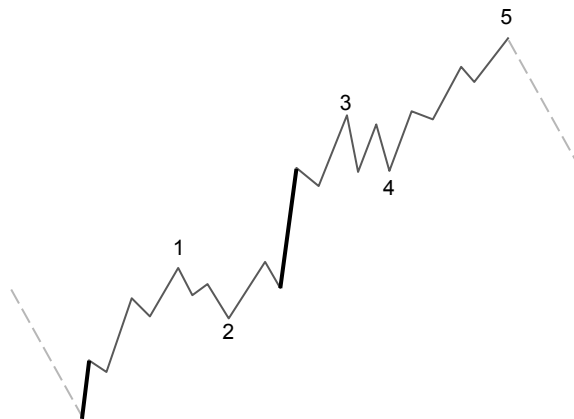
Change time frame and zoom level

- In fast moving market (strong impulses), use lower timeframe (1H/15m/5m).
- In slow moving market (complex corrections), use higher timeframe (4H/D/W).
- Too many waves / patterns, zoom in.
- Not enough information to define waves / patterns, zoom out.

General guidelines.

Slope

In an impulse, the center of wave 3 almost always has the steepest slope, except sometimes an early portion of wave 1 will be steeper.

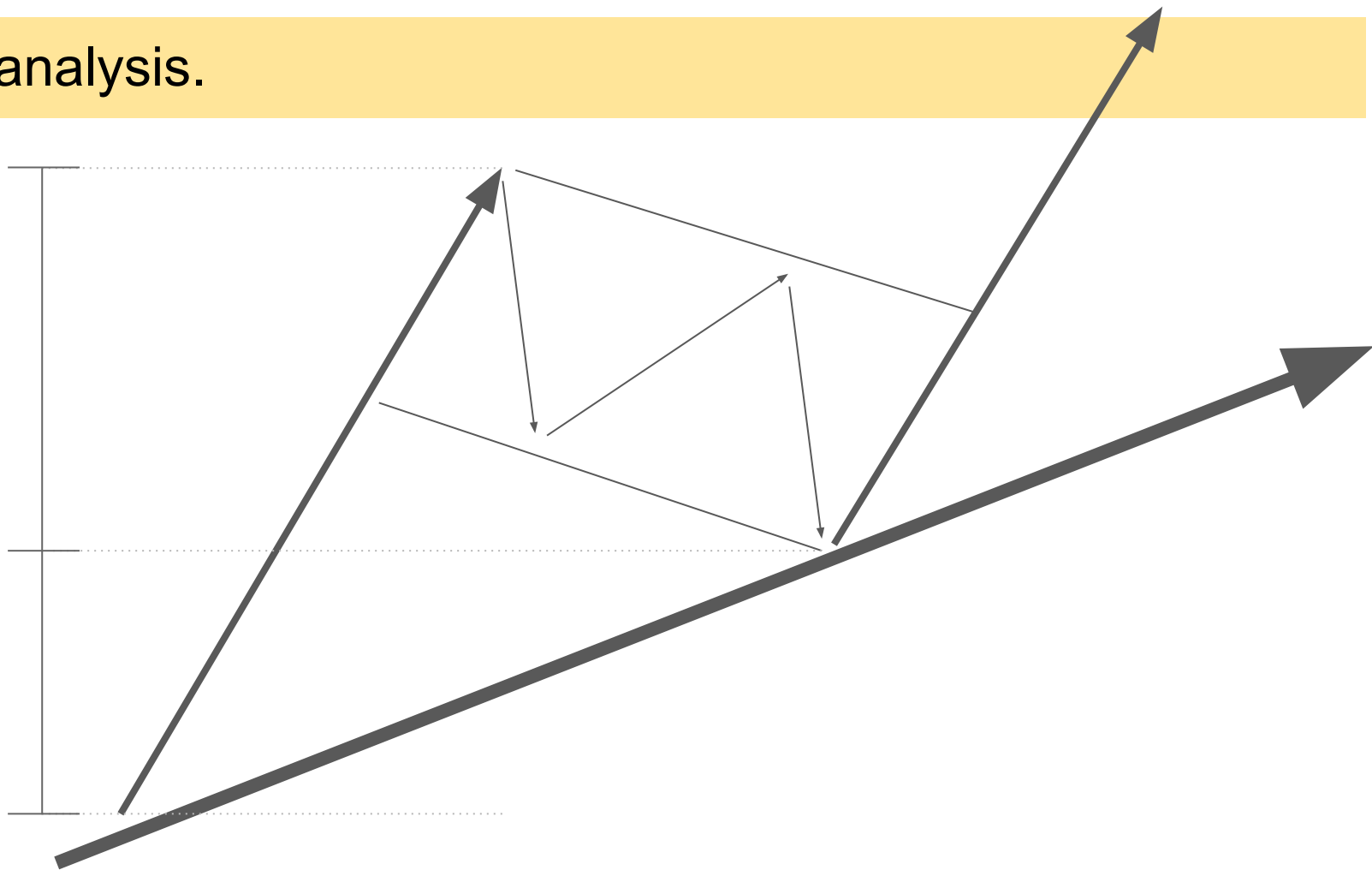


Fibonacci

Wave 4 often subdivides the entire impulse into fibonacci proportion in time and/or price.

- **Grand supercycle:** multi-century
- **Supercycle:** multi-decade (about 40–70 years)
- **Cycle:** one year to several years (or even several decades under an Elliott Extension)
- **Primary:** a few months to a couple of years
- **Intermediate:** weeks to months
- **Minor:** weeks
- **Minute:** days
- **Minuette:** hours
- **Subminuette:** minutes

Ratio analysis.



Ratio analysis.

$\Phi = 0.618\dots$

Most common ratios with Φ

- 2.618 $2+\Phi = (1+\Phi)^2 = 1/\Phi^2$
- 1.618 $1+\Phi = 1/\Phi = \sqrt{2+\Phi}$
- 1.414 $\sqrt{2}$
- 1.272 $\sqrt{1+\Phi} = 1/(\sqrt{\Phi})$
- 1.236 $2x\Phi = 1+\Phi^3$
- 1
- .886 $\sqrt{\sqrt{\Phi}}$
- 0.81 $1/(2x\Phi) = 1/(1+\Phi^3)$
- .786 $\sqrt{\Phi}$
- .618 $\Phi = (1/\Phi)-1$
- .5 $1/2$
- .382 Φ^2
- .236 Φ^3
- .146 Φ^4

$\varphi = 1.618\dots$

Most common ratios with φ

- 2.618 $\varphi+1 = \varphi^2 = 1/(\varphi-1)^2$
- 1.618 $\varphi = 1/(\varphi-1) = \sqrt{\varphi+1}$
- 1.414 $\sqrt{2}$
- 1.272 $\sqrt{\varphi} = 1/\sqrt{\varphi-1}$
- 1.236 $2x(\varphi-1) = 1+(\varphi-1)^3$
- 1
- .886 $\sqrt{\sqrt{\varphi-1}}$
- 0.81 $1/(2x(\varphi-1)) = 1/(1+(\varphi-1)^3)$
- .786 $\sqrt{\varphi-1}$
- .618 $\varphi-1 = 1/\varphi$
- .5 $1/2$
- .382 $(\varphi-1)^2$
- .236 $(\varphi-1)^3$
- .146 $(\varphi-1)^4$

When Fibonacci ratios are used to forecast waves length, it is important to use orthodox level instead of price's high/low.

Ratio analysis.

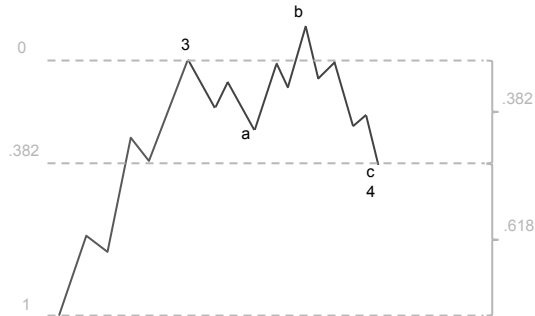
Retracements ratio tendency.

Sharp corrections tend to retrace .618 or .5 of the previous wave when they occur as :

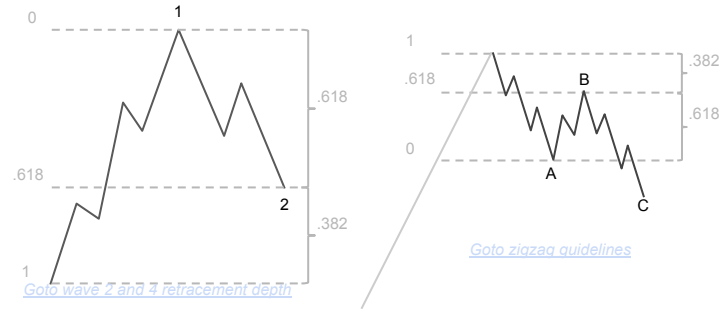
- Wave 2 of an impulse
- Wave B of a **larger** zigzag
- Wave X of a multiple zigzag

After a leading diagonal, sharp corrections tend to retrace .786 of the previous wave.

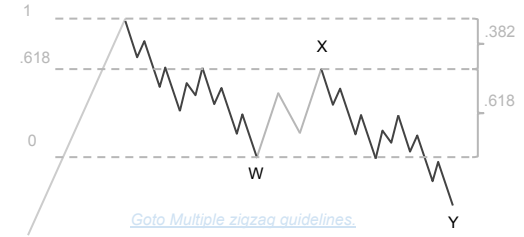
Wave 4 sideways corrections tend to retrace .382 of the previous wave.



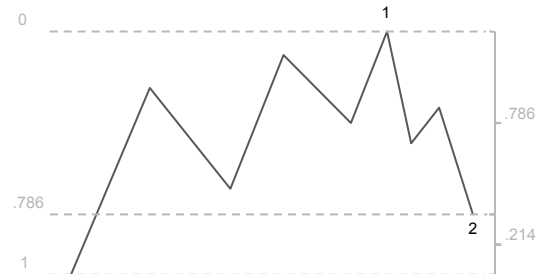
[Goto wave 2 and 4 retracement depth](#)



[Goto zigzag guidelines](#)



[Goto Multiple zigzag guidelines.](#)

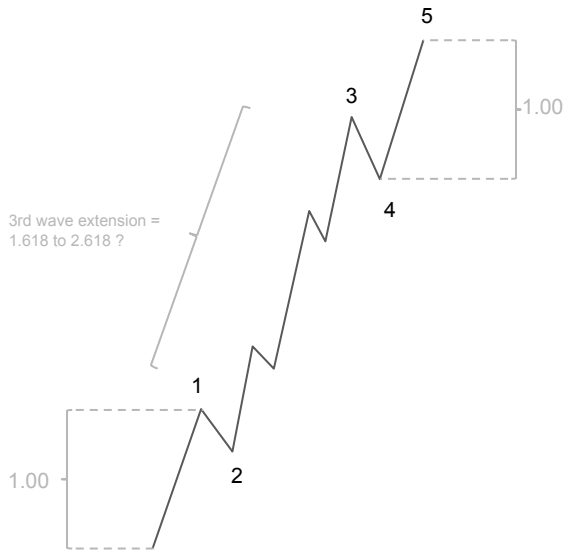


[Goto Leading diagonal guidelines.](#)

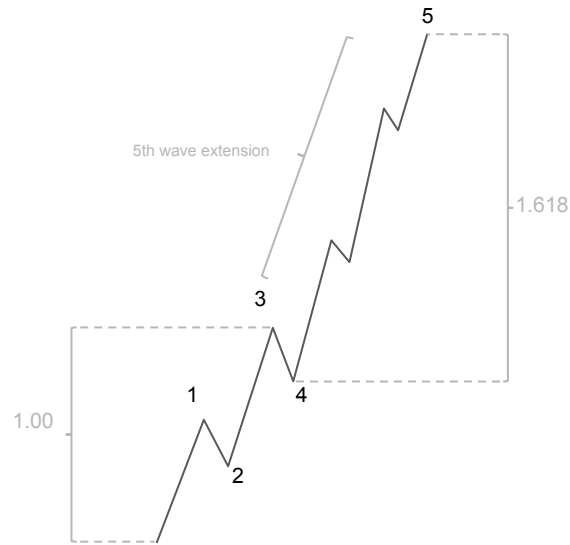
Ratio analysis.

Extended impulse - waves ratio tendency:

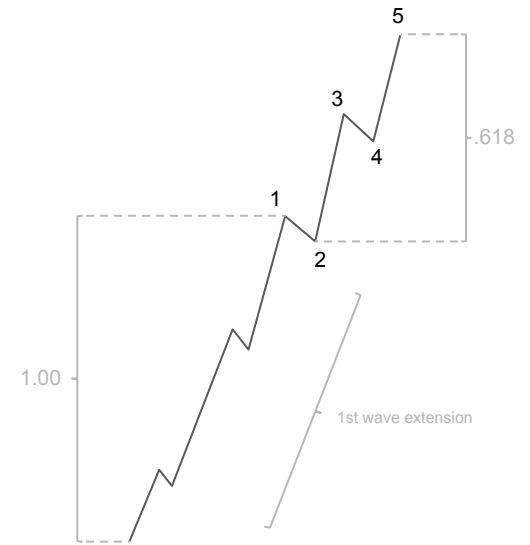
In an extended impulse, waves 1, 3 and 5 tend toward equality, 1.618 or 2.618 relationship.



When wave 3 is extended, waves 1 and 5 tend toward either equality or a .618 relationship.



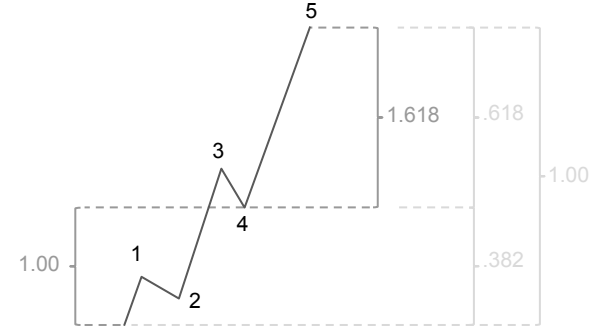
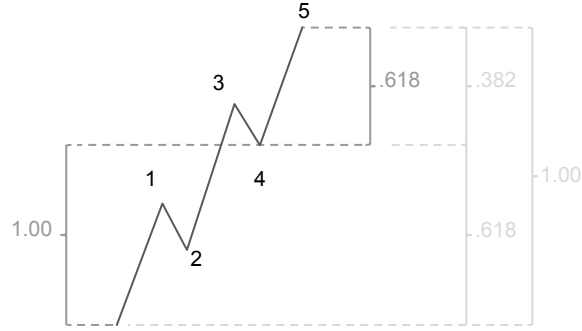
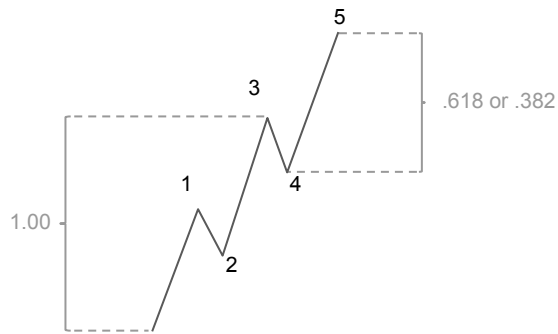
Sometimes extended wave 5 is related to a 1.618 ratio of wave 1 through wave 3.



Sometimes extended wave 1 is related to a .618 ratio of wave 2 through wave 5.

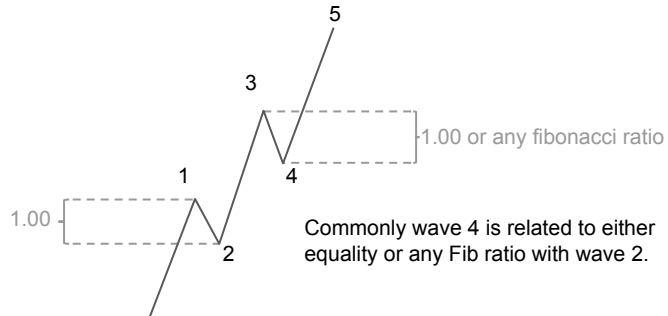
Ratio analysis.

Non extended Impulse - waves ratio tendency:



Sometimes wave 5 is related to a .618 or .382 ratio with wave 1 through wave 3.

In the 2 cases above, the exact point within wave 4 that affects the subdivision can vary. It can be orthodox start, orthodox end or extreme high/low.

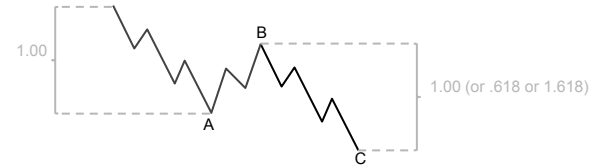


Commonly wave 4 is related to either equality or any Fib ratio with wave 2.

Ratio analysis.

Corrective wave multiples:

In zigzags, wave C is usually 1.00 (sometimes .618 or 1.618) times the height of wave A.



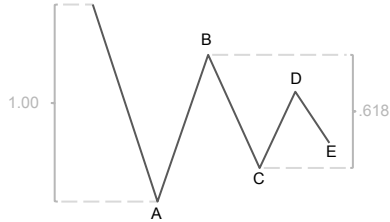
Same rule apply for C of ABC and for Z of XYZ combination

[Goto zigzag guidelines](#)

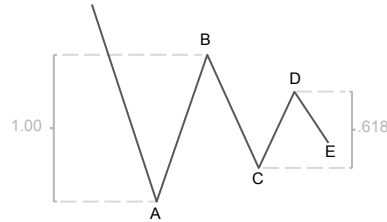
Ratio analysis.

Corrective wave multiples:

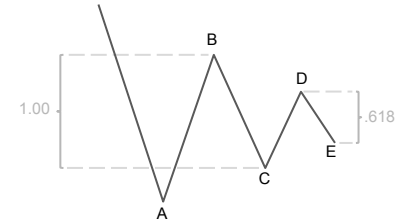
In contracting triangles, at least two of the subwaves are related to each other by .618 ratio.



or

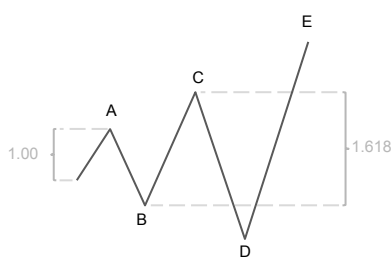


or

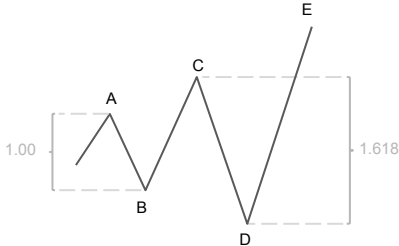


[Goto contracting triangles guidelines.](#)

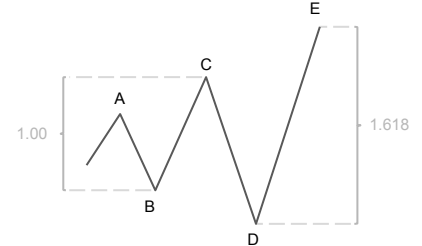
In expanding triangles, the multiple is 1.618



or



or



[Goto expanding triangles guidelines.](#)

Ratio analysis.

Combination multiples:

In combinations net travel of one component is sometimes related to another by equality.

Or, particularly if one is a triangle, by .618

